# ROYAL ASTRONOMICAL SOCIETY.

VOL. XII. *May* 14, 1852. No. 7.

J. C. ADAMS, Esq., President, in the chair.

Rev. John Richardson, Elizabeth College, Guernsey, was duly elected a Fellow of the Society.

*June* 11, 1852. No. 8.*

G. B. AIRY, Esq., Vice-President, in the Chair.

Lieut. William Burdon, R.N., was duly elected a Fellow of the Society.

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The Queen's warrant has been issued, granting a pension of 200*l.* to our Foreign Secretary, Mr. John Russell Hind, "for important astronomical discoveries." We understand that the Earl of Rosse, P.R.S., brought Mr. Hind's merits before the consideration of Government, and, which enhances the obligation, without Mr. Hind's knowledge.

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The *Berliner Jahrbuch* for 1855 has just been received. It contains Ephemerides for 1853 of the following newly-discovered small planets:—*Hebe*, *Iris*, *Flora*, *Metis*, *Victoria*, *Egeria*, *Eunomia*, and *Melpomene*. There are no Ephemerides of *Astræa*, *Hygeia*, *Parthenope*, *Irene*, *Psyche*, *Thetis*, *Fortuna*, or *Massilia*. An Ephemeris of *Neptune* by Dr. Brünnow, on the Elements and Perturbations of Professor Peirce, is given; the Elements are considered a little more exact than those inserted in the *Jahrbuch* for 1854.

* The publication of the *Monthly Notices* has fallen into some disorder, from various causes, and principally on account of the absence of the Editor. It has been thought most advisable to publish the *Notices* for May and June together, and to include everything which has been received up to the date of publication. The greater frequency and regularity of the appearances of the *Astronomische Nachrichten* renders it a far better channel of communication for Ephemerides than the *Monthly Notices* can ever pretend to be.

Vol. XXXIV. of the *Astronomische Nachrichten* closed with No. 816. It is requested that the subscribers who have not yet paid for Vol. XXXV. will forward their subscriptions, 11*s.* 6*d.*, to Mr. Williams. The payments are in *advance*, and the Numbers are sent by *post*.

At last the Editor is able to say that the price fixed for the volumes of the *Astronomische Nachrichten*, up to the death of the lamented Professor Schumacher, is 6*s.* per volume. When six volumes are taken, the price will be 5*s.* There is no copy of Vols. I. and III. and only one of Vol. II., three of Vol. IV., and two of Vol. VII. Of the other volumes there is a tolerable supply, and a considerable quantity of single Numbers, which would be supplied at 4*d.* the Number. The Editor earnestly requests that gentlemen who wish to purchase either Volumes or Numbers will give him early information, as the cost of transmission to this country, which must be added to the above prices, will be comparatively very large if the parcels are small. The payments may be made to our Assistant-Secretary, Mr. Williams, who has very kindly offered his assistance.

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## MASSILIA.

On the 19th of September, Professor de Gasparis, of the Observatory of Naples, discovered a new planet, which was about the 9 mag. On comparing the planets with Lalande 203; Lalande 449 = Weisse 273; Lalande 579 = Weisse 330; it was judged to be a little less bright than the first of those stars.

NAPLES. (Dr. A. de Gasparis.)

| 1852. | Naples M. T. h m s | R.A. h m s | Decl. ° ′ ″ |
|---|---|---|---|
| Sept. 19 | 10 20 24 | 0 12 10·73 | +1 53 0·6 |
| 20 | 7 50 22 | 11 22·62 | 47 16·8 |
| 21 | 8 55 54 | 10 25·72 | 40 47·1 |
| 22 | 14 17 40 | 9 18·38 | 33 10·2 |
| 23 | 16 7 30 | 8 19·08 | 26 18·6 |
| 24 | 11 52 21 | 7 34·78 | 20 52·0 |
| 25 | 12 20 41 | 6 37·72 | 14 59·0 |
| 27 | 9 16 40 | 4 55·34 | 1 3 20·6 |
| 28 | 9 44 47 | 3 59·84 | 0 56 35·2 |
| 29 | 8 29 0 | 3 7·00 | 50 47·0 |
| 30 | 8 55 22 | 2 11·62 | 44 15·7 |
| Oct. 1 | 11 31 58 | 0 1 11·20 | +0 37 18·6 |

This planet was also discovered at Marseille by M. Chacornac, who, on November 20th, remarked a small star of the 9th magnitude in a place where before he had seen no star. Between $10^h\,50^m$ and $15^h\,30^m$ its R.A. diminished $10^s$. On further examina-

tion M. Chacornac found that a star which he had noted on Sept. 9 was now missing.

| 1852. | Marseille M.T. h m | R.A. o ′ | Decl. o ′ |
|---|---|---|---|
| Sept. 9 | 12 0 | 5 4 m s | +2 40 ′ ″ |
| 20 | 12 2 | ✻ Lalande 449 −4 54 | ✻ Lalande 449 − 9 45 |
| | 15 57 | −5 4 | −10 45 |
| 21 | 10 40 | 44 Piscium −7 28 | 44 Piscium +33 15 |

The name proposed by M. Chacornac was *Massilia*, before the previous discovery by Dr. de Gasparis was known at Marseille, and in this name the first discoverer has, we understand, acquiesced.

HAMBURG. (M. C. Rümker.)

| 1852. | Hamburg M.T. h m s | R.A. o ′ ″ | L. Fact. Parx. | Decl. o ′ ″ | L. Fact. Parx. | Comps. |
|---|---|---|---|---|---|---|
| Sept. 30 | 14 9 32·0 | 0 29 44·5 | +9·5992 | +0 42 57·0 | 9·9015 | 6 |
| Oct. 2 | 8 5 24·4 | 0 6 3·3 | −9·6894 | 0 32 5·9 | 9·9028 | 7 |
| 3 | 10 12 2·0 | 359 51 39·7 | 9·1631 | 0 25 19·5 | 9·9021 | 3 |
| 6 | 8 38 0·0 | 359 13 25·4 | 9·5246 | +0 13 10·6 | 9·9033 | 1 |
| 8 | 8 27 49·3 | 358 48 16·5 | 9·5265 | −0 3 59·1 | 9·9046 | 9 |
| 9 | 8 0 32·8 | 358 36 11·8 | 9·5832 | 0 9 42·3 | 9·9051 | 7 |
| 12 | 8 6 25·8 | 358 0 42·6 | 9·5224 | 0 26 12·9 | 9·9063 | 8 |
| 13 | 7 52 29·2 | 357 49 34·2 | 9·5551 | 0 31 29·6 | 9·9066 | 7 |
| 16 | 7 43 58·6 | 357 17 40·3 | −9·5436 | −0 46 37·9 | 9·9079 | 10 |

*Apparent* Places of Stars of Comparison.

| 1852. | R.A. h m s | Decl. o ′ ″ | 1852. | R.A. h m s | Decl. o ′ ″ |
|---|---|---|---|---|---|
| Sept. 30 | 0 10 14·04 | +0 52 11·8 | Oct. 8 | 0 1 19·89 | −0 7 36·1 |
| | 7 4·36 | 28 42·3 | 9 | 0 1 19·90 | −0 7 36·2 |
| | 6 15·58 | 33 56·8 | 12 | 23 53 6·62 | −0 35 49·0 |
| Oct. 2 | 0 0 6·85 | +0 31 45·2 | | 53 55·86 | 31 3·0 |
| | 1 55·25 | 25 27·1 | | 54 26·82 | 41 17·6 |
| 3 | 0 1 55·27 | +0 25 27·1 | 13 | 23 53 6·62 | −0 35 49·1 |
| 6 | 23 52 28·12 | +0 16 10·6 | | 53 55·86 | 31 3·1 |
| | 53 1·91 | 14 46·7 | 16 | 23 47 14·51 | −0 42 34·3 |

ALTONA. Mer. Circle. Dr. Petersen.

| 1852. | Altona M.T. h m s | R.A. h m s | Decl. o ′ ″ |
|---|---|---|---|
| Oct. 3 | 11 8 20 | 23 59 24·10 | +0 25 4·2 |

SOUTH VILLA. (Mr. Hind.)

| 1852. | Green. M.T. h m s | R.A. h m s | N.P.D. o ′ ″ |
|---|---|---|---|
| Oct. 2 | 11 21 3 | 0 0 15·64 | 89 28 54·9 |

## FORTUNA.

*Discovered by Mr. J. R. Hind, at the South Villa Observatory.*

"On August 22d, at $11^h\ 30^m$ mean time, I detected another planet, equal in brightness to a star of the 9th magnitude, near the northern limit of our ecliptical chart for $22^h$ of R.A. It was micrometrically compared with Weisse xxii. 493, and the motion westward was appreciable in about twenty minutes. The star has been meridionally observed at Greenwich.

"Mr. Bishop having deputed me to name this (our sixth) planet, I have proposed to call it *Fortuna*. The following observations have been carefully reduced, and will I believe prove pretty exact:"—

| 1852. | Green. M.T. h m s | App. R.A. h m s | App. N.P.D. ° ′ ″ |
|---|---|---|---|
| Aug. 22 | 11 35 39·4 | 22 22 29·75 | 97 32 18·9 |
| | 12 27 16·3 | 27·89 | 30·0 |
| 26 | 9 17 31·2 | 22 19 3·92 | 97 53 33·1 |
| Sept. 8 | 11 29 15·2 | 22 7 49·58 | 99 6 35·7 |
| | 11 38 31·6 | 49·30 | 37·0 |

LIVERPOOL. Equatoreal. (Mr. Hartnup.)

| 1852. | Green. M.T. h m s | R.A. h m s | Log $\frac{p}{P}$ | N.P.D. ° ′ ″ | Log $\frac{q}{P}$ | Star of Comparison. |
|---|---|---|---|---|---|---|
| Aug. 26 | 13 55 2·8 | 22 18 53·48 | +8·254 | 97 54 44·2 | −9·9370 | B.A.C.7784 |
| | 14 18 58·6 | 52·24 | ·335 | 51·3 | ·9349 | — — |
| | 14 42 54·3 | 51·19 | ·398 | 57·2 | ·9292 | — — |
| 30 | 12 7 5·3 | 22 15 24·82 | +7·475 | 98 16 50·4 | −9·9428 | — 7773 |
| | 12 32 0·2 | 23·72 | ·865 | 56·8 | ·9422 | — — |
| Sept. 1 | 10 4 47·9 | 22 13 44·09 | −8·214 | 98 27 39·1 | −9·9399 | — — |
| | 10 19 45·1 | 43·56 | ·144 | 42·4 | ·9409 | — — |
| 2 | 10 5 59·5 | 22 12 51·90 | −8·188 | 98 33 16·1 | −9·9408 | — — |
| | 10 20 57·0 | 51·49 | 7·111 | 20·9 | ·9417 | — — |
| 3 | 10 48 3·7 | 22 11 58·82 | −7·876 | 98 39 2·7 | −9·9436 | — — |
| | 11 3 1·1 | 58·28 | ·691 | 6·0 | ·9441 | — — |
| 13 | 12 17 1·4 | 22 4 3·59 | +8·203 | 99 32 28·0 | −9·9440 | — 7670 |
| | 12 39 27·6 | 2·69 | ·292 | 35·1 | ·9418 | — 7773 |
| 16 | 12 32 40·3 | 22 2 3·49 | +8·315 | 99 46 46·4 | −9·9418 | — — |
| | 12 47 37·8 | 3·22 | ·360 | 49·7 | ·9401 | — — |

Assumed *Mean* Places of the Stars for 1852·0.

| | R.A. h m s | N.P.D. ° ′ ″ | Authority. |
|---|---|---|---|
| B.A.C. 7784 | 22 12 24·49 | 98 33 43·7 | Greenwich 12-years Catalogue. |
| — 7773 | 22 9 1·21 | 98 31 5·0 | Greenwich Observations. |
| — 7670 | 21 55 29·22 | 97 14 7·7 | Greenwich 12-years Catalogue. |

## Hamburg. (M. C. Rümker.)

| 1852. | Hamburg M.T. h m s | R.A. ° ′ ″ | L. Fact. Par$^{x}$. | Decl. ° ′ ″ | L. Fact. Par$^{x}$. | Comps. | |
|---|---|---|---|---|---|---|---|
| Sept. 2 | 9 22 31·1 | 333 13 51·7 | −9·4851 | −8 32 54·8 | 9·9396 | 13 | |
| | 11 23 56·3 | 12 37·2 | | 33 23·7 | 9·9464 | | Mer. |
| 3 | 9 27 42·8 | 332 60 47·2 | −9·4515 | 8 38 34·4 | 9·9409 | 18 | |
| | 11 19 9·0 | 59 45·8 | | 38 59·0 | 9·9467 | | — |
| 5 | 8 58 3·0 | 332 35 39·2 | −9·5179 | 8 49 40·3 | 9·9395 | 11 | |
| | 11 9 36·6 | 34 32·4 | | 50 6·5 | 9·9475 | | — |
| 6 | 9 36 5·7 | 332 22 53·8 | −9·3585 | 8 55 10·9 | 9·9437 | 6 | |
| | 11 4 41·2 | 22 6·9 | | 55 30·6 | 9·9479 | | — |
| 7 | 8 38 50·3 | 332 11 4·0 | −9·5444 | 9 0 23·3 | 9·9389 | 7 | |
| | 11 0 6·6 | 9 55·5 | | 1 0·9 | 9·9482 | | — |
| 8 | 9 2 55·8 | 331 58 53·9 | −9·4558 | 9 6 1·9 | 9·9423 | 10 | |
| | 10 55 23·1 | 57 59·0 | | 6 21·9 | 9·9485 | | — |
| 9 | 9 0 21·0 | 331 47 16·3 | −9·4494 | 9 11 1·7 | 9·9427 | 6 | |
| | 10 50 40·3 | 46 14·9 | | 11 35·8 | 9·9489 | | — |
| 11 | 9 2 16·7 | 331 24 12·8 | −9·4135 | 9 21 37·0 | 9·9443 | 5 | |
| | 10 41 18·6 | 23 40·5 | | 21 58·5 | 9·9496 | | — |
| 13 | 10 19 16·2 | 331 2 7·4 | −8·5272 | 9 31 47·8 | 9·9495 | 2 | |
| | 10 31 59·7 | 1 52·5 | | 31 58·3 | 9·9502 | | — |
| 14 | 8 42 25·1 | 330 51 54·9 | −9·4285 | 9 36 40·0 | 9·9448 | 1 | |
| | 10 27 22·9 | 51 39·0 | | 36 50·3 | 9·9505 | | — |
| 16 | 8 29 34·4 | 330 32 54·5 | −9·4427 | 9 45 50·5 | 9·9450 | 4 | |
| | 10 18 12·9 | 32 1·9 | | 46 13·6 | 9·9511 | | — |
| 17 | 8 51 50·3 | 330 23 32·9 | −9·4786 | 9 50 31·8 | 9·9442 | 4 | |
| | 10 13 40·3 | 22 49·6 | | 50 48·6 | 9·9514 | | — |
| 21 | 9 55 44·6 | 329 49 42·4 | | 10 7 35·1 | 9·9525 | | — |
| 22 | 11 49 20·3 | 329 41 57·2 | +9·4800 | 10 11 43·1 | 9·9452 | 4 | |
| 25 | 9 38 15·2 | ..... | | 10 21 50·4 | 9·9534 | | — |
| Oct. 2 | 9 8 50·3 | 328 54 43·7 | | 10 41 24·5 | 9·9545 | | — |
| 3 | 11 5 13·8 | 328 52 24·1 | +9·4848 | 10 43 46·5 | 9·9468 | 5 | |
| 8 | 8 44 51·1 | 328 48 46·5 | | 10 51 24·9 | 9·9551 | | — |
| 9 | 8 40 50·2 | 328 49 30·9 | | 10 52 29·8 | 9·9552 | | — |
| 12 | 8 29 30·4 | 328 54 29·3 | | 10 54 48·0 | 9·9554 | | — |
| 16 | 8 14 41·6 | 329 8 15·4 | | −10 54 55·9 | 9·9557 | | — |

*Mean* Places for 1852·0, of Stars compared with *Fortuna*, deduced from observations with the Hamburg Meridian Circle.

| R.A. h m s | Obs. | Decl. ° ′ ″ | Obs. | R.A. h m s | Obs. | Decl. ° ′ ″ | Obs. |
|---|---|---|---|---|---|---|---|
| 21 51 6·13 | 3 | −10 52 59·4 | 3 | 22 7 9·53 | 3 | −9 42 25·0 | 3 |
| 21 53 57·14 | 2 | 10 35 8·2 | 2 | 22 7 45·19 | 1 | 9 7 51·1 | 1 |
| 21 59 53·53 | 1 | 10 47 53·9 | 1 | 22 9 3·48 | 2 | 9 46 32·1 | 2 |
| 22 2 30·56 | 2 | 10 6 49·1 | 2 | 22 11 20·99 | 1 | 8 32 13·1 | 1 |
| 22 3 16·99 | 1 | 8 43 | | 22 13 2·46 | 1 | 9 30 24·2 | 1 |
| 23 3 24·08 | 1 | 8 43 | | 22 14 28·75 | 1 | −8 13 40·2 | 1 |
| 22 4 46·71 | 2 | −8 44 28·2 | 2 | | | | |

*Elements.*

By Mr. E. Vogel, of Mr. Bishop's Observatory, South Villa, Regent's Park.

| | | |
|---|---|---|
| M ..... | 321 13 12·08 | 1852, Sept. 10·0 Greenwich M.T. |
| $\varpi$ ..... | 30 23 29·12 | Mean Equinox, |
| $\Omega$ ..... | 211 35 25·26 | Jan. 0.0, 1852 |
| $i$ ..... | 1 32 13·13 | |
| $\varphi$ ..... | 9 3 55·67 | |
| Log $e$ ..... | 9·1974538 | |
| Log $a$ ..... | 0·3875506 | |
| Log $\mu$ ..... | 2·9686807 | $\mu$ = 930″·423642 |

These elements, which are deduced from the observations at South Villa, August 22; at Greenwich, Aug. 30; and at South Villa, Sept. 8, exactly represent the middle observation.*

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## MELPOMENE.

*Discovered by Mr. J. R. Hind, at the South Villa Observatory.*

"On June 24th, at $12^h\ 30^m$ mean time, I remarked an object resembling a star of the 9th magnitude in a part of the heavens in $18^h$ R.A., which, from previous acquaintance with the vicinity, I was satisfied must be a new planet, the other members of the group between *Mars* and *Jupiter* all occupying different positions. Observations with the wire-micrometer indicated a sensible change of R.A. in $15^m$. The Astronomer Royal having been requested by Mr. Bishop to name the newly discovered planet, has called it *Melpomene*. I remarked on the first night, and on several subsequent occasions, a strong yellowish colour about the light of this object, quite different from the appearance of the telescopic stars in the same field of view."

"The following are the positions of *Melpomene*, resulting from observations with the wire-micrometer. The comparison-stars up to July 3 have been observed by Mr. Airy, who has kindly favoured me with the resulting mean places which have been used in my reductions:"—

| 1852. | Green. M.T. h m s | App. R.A. ° ′ ″ | App. N.P.D. ° ′ ″ |
|---|---|---|---|
| June 24 | 12 50 19·7 | 18 12 59·92 | 98 15 52·0 |
| | 13 17 45·4 | 58·80 | 54·7 |
| | 14 3 28·0 | 56·67 | 58·2 |
| 26 | 10 16 29·0 | 18 11 0·94 | 98 20 57·6 |
| 29 | 10 11 45·5 | 18 7 52·23 | 98 30 0·1 |

* Mr. Vogel sent at the same time an approximate Ephemeris from Sept. 14 to Oct. 14, which is omitted here, as being out of date. The Editor fears that the blame of delay on this occasion rests with him, but the Ephemerides not contained in the *Nautical Almanac* are to be found in the *Astronomische Nachrichten*.

| 1852. | Green. M.T. h m s | App. R.A. ° ′ ″ | App. N.P.D. ° ′ ″ |
|---|---|---|---|
| June 30 | 10 16 23·4 | 18 6 49·05 | 98 33 33·2 |
| July 2 | 11 3 31·6 | 18 4 42·43 | 98 40 51·9 |
| 3 | 11 46 11·6 | 18 3 38·89 | 98 44 53·9 |
| 9 | 11 4 47·2 | 17 57 42·50 | 99 11 41·1 |
| | 11 7 43·7 | 42·38 | 45·8 |
| 30 | 9 10 59·8 | 17 42 45·66 | 101 21 0·4 |

LIVERPOOL. Equatoreal. (Mr. Hartnup.)

| 1852. | Green. M.T. h m s | R.A. h m s | Log $\frac{p}{P}$ | N.P.D. ° ′ ″ | Log $\frac{q}{P}$ | Star of Comparison. |
|---|---|---|---|---|---|---|
| Aug. 25 | 9 14 19·4 | 17 43 25·41 | +8·224 | 104 34 21·5 | −9·9594 | B.A.C. 5976 |
| | 9 39 16·4 | 25·70 | 8·317 | 31·5 | 9·9558 | — — |
| 31 | 8 34 5·9 | 17 46 46·15 | 8·128 | 105 17 51·8 | 9·9637 | — — |
| | 8 58 3·2 | 46·55 | 8·242 | 55·3 | 9·9608 | — — |
| Sept. 1 | 8 50 47·6 | 17 47 26·75 | 8·226 | 105 25 6·0 | 9·9616 | — — |
| | 9 14 45·0 | 27·08 | 8·316 | 12·6 | 9·9580 | — — |
| 2 | 8 9 37·8 | 17 48 7·30 | 8·015 | 105 31 53·9 | 9·9660 | — — |
| | 8 33 35·1 | 7·70 | 8·161 | 62·9 | 9·9641 | — — |
| 16 | 7 50 15·4 | 18 0 53·81 | 8·159 | 107 4 33·4 | 9·9677 | — 6086 |
| | 8 5 14·1 | 54·78 | +8·229 | 36·4 | −9·9657 | — — |

Assumed *Mean* Places of the Stars for 1852·0.

| | R.A. h m s | N.P.D. ° ′ ″ | Authority. |
|---|---|---|---|
| B.A.C. 5976 | 17 33 5·92 | 102 47 28·1 | Greenwich Observations. |
| — 6086 | 17 52 47·22 | 107 8 46·2 | Greenwich 12-yr. Catalogue. |

HAVERHILL. (W. Boreham).

| 1852. | Green. M.T. h m s | R A. h m s | Log P | N.P.D. ° ′ ″ | Log $p$ | No. of Obs. | |
|---|---|---|---|---|---|---|---|
| June 29 | 10 18 14 | 18 7 50·58 | −8·6185 | 98 30 11·9 | −0·8722 | 9 | *a* |
| 30 | 10 36 36 | 6 48·72 | 8·5677 | 33 32·3 | 0·8722 | 9 | *a* |
| July 3 | 10 58 33 | 3 40·75 | 8·3954 | 44 58·1 | 0·8775 | 9 | *b* |
| 4 | 10 36 28·4 | 2 40·21 | 8·7175 | 48 58·2 | 0·8733 | 10 | *b* |
| 5 | 10 22 46·5 | 1 39·79 | 8·7747 | 53 12·2 | 0·8737 | 10 | *b* |
| 6 | 10 20 57·8 | 18 0 40·20 | 8·7848 | 98 57 28·7 | 0·8736 | 10 | *c* |
| 7 | 10 46 7 | 17 59 39·55 | 8·1607 | 99 2 1·5 | 0·8736 | 7 | *d* |
| 8 | 10 22 52 | 58 41·73 | −8·7119 | 6 38·5 | 0·8716 | 10 | *d* |
| 9 | 10 55 44·4 | 57 42·61 | +8·1903 | 11 39·5 | 0·8753 | 10 | *d* |
| 11 | 10 10 14·3 | 55 51·58 | −8·6311 | 21 42·2 | 0·8757 | 5 | *d* |
| 12 | 10 41 34·5 | 54 56·08 | +8·3533 | 27 0·5 | 0·8765 | 10 | *e* |
| 21 | 10 32 57 | 47 43·25 | +8·8387 | 100 20 21·8 | 0·8782 | 10 | *f* |
| 22 | 10 44 52 | 17 47 2·03 | +8·9868 | 100 26 52·5 | −0·8784 | 10 | *g* |

$\frac{P}{\Delta}$ and $\frac{p}{\Delta}$ = parallax in R.A. and N.P.D. respectively in seconds of time and arc, $\Delta$ being the distance of the planet from the earth. The observations are already corrected for refraction.

Assumed *Mean* Places of the Stars compared with the Planet.

| | | R.A. | N.P.D. |
|---|---|---|---|
| | h | h m s | ° ′ ″ |
| *a* | Weisse, XVIII, 147 | 18 7 27·42 | 98 31 44·5 |
| *b* | — — 61 | 18 3 56·15 | 98 45 39·1 |
| *c* | — — 7 | 18 1 36·57 | 98 47 30·5 |
| *d* | — XVII, 1212 | 17 57 37·31 | 99 16 8·1 |
| *e* | B.A.C. 6078 | 17 50 52·88 | 99 45 2·3 |
| *f* | Weisse, XVII, 980 | 17 48 16·69 | 100 9 38·2 |
| *g* | — — 906 | 17 45 0·85 | 100 19 52·4 |

## HAMBURG. (M. C. Rümker.)

| 1852. | Hamburg M.T. h m s | R.A. ° ′ ″ | Parx. ″ | Decl. ° ′ ″ | Parx. ″ | Comps. | |
|---|---|---|---|---|---|---|---|
| June 28 | 12 7 31·8 | 272 12 50·7 | +0·5 | −8 27 5·3 | +4·9 | 10 | |
| 30 | 10 16 50·5 | 271 42 43·4 | −1·3 | 33 24·1 | 4·9 | 3 | |
| July 2 | 12 42 27·7 | 271 10 1·8 | +1·5 | 41 1·9 | 4·9 | 15 | |
| 3 | 12 0 24·3 | 270 54 58·0 | +0·8 | 44 52·4 | 4·9 | 19 | |
| 4 | 10 26 39·1 | 270 40 40·4 | −1·0 | 48 44·1 | 4·9 | 9 | |
| | 11 10 21·9 | 25 3·2 | | 50·9 | 6·1 | | Mer. Circle |
| 5 | 10 20 16·3 | 270 25 27·1 | −1·0 | 52 53·5 | 4·9 | 14 | |
| | 11 5 25·8 | 25 3·2 | | 5·8 | 6·1 | | Mer. Circle |
| 6 | 11 0 30·0 | 270 10 2·0 | ... | 8 57 26·8 | 6·1 | | — — |
| 7 | 10 55 34·9 | 269 55 12·2 | ... | 9 2 1·0 | 6·1 | | — — |
| 8 | 10 50 40·8 | 269 40 36·4 | ... | 6 41·7 | 6·1 | | — — |
| 9 | 10 45 47·1 | 269 26 8·8 | ... | 11 29·8 | 6·0 | | — — |
| 10 | 10 40 55·0 | 269 12 3·5 | ... | ..... | ... | | — — |
| 11 | 10 36 3·5 | 268 58 6·8 | ... | 21 36·7 | 6·0 | | — — |
| 12 | 10 31 13·7 | 268 44 27·7 | ... | 26 53·1 | 6·0 | | — — |
| 14 | 10 21 37·6 | 268 18 4·0 | ... | 37 50·3 | 6·0 | | — — |
| 15 | 10 16 49·0 | 268 5 14·3 | ... | 43 28·1 | 6·0 | | — — |
| 16 | 10 12 3·7 | 267 52 52·5 | ... | 49 15·4 | 6·0 | | — — |
| 17 | 10 7 19·4 | 267 40 43·4 | ... | 9 55 9·6 | 6·0 | | — — |
| 20 | 9 53 16·8 | 267 6 54·0 | ... | 10 13 36·1 | 6·0 | | — — |
| 22 | 9 44 2·7 | 266 46 17·9 | ... | 26 16·9 | 6·0 | | — — |
| 23 | 9 39 27·9 | 266 36 35·4 | ... | 32 49·9 | 5·9 | | — — |
| 24 | 9 34 55·4 | 266 27 21·5 | ... | 39 23·8 | 5·9 | | — — |
| 25 | 10 40 53·0 | 266 18 9·2 | +1·2 | 46 32·8 | 4·6 | 14 | |
| 26 | 9 25 54·9 | 266 10 9·4 | | 10 52 57·0 | 5·9 | | Mer. Circle |
| | 10 20 15·5 | 9 56·0 | 1·2 | 10 53 12·0 | 4·5 | 13 | — — |
| 28 | 9 17 2·4 | 265 54 56·4 | | 11 6 50·0 | 5·9 | | Mer. Circle |
| 29 | 9 12 38·8 | 265 48 1·5 | | 13 41·4 | 5·9 | | — — |
| 30 | 9 18 17·2 | 265 41 33·8 | | 20 55·9 | 5·8 | | — — |
| | 10 18 29·9 | 41 27·8 | +1·2 | 21 4·5 | 4·5 | 6 | |
| Aug. 1 | 8 59 39·8 | 265 30 8·3 | | −11 35 8·3 | +5·8 | | Mer. Circle |

| 1852. | Hamburg M.T. | R.A. | Par$^{x}$. | Decl. | Par$^{x}$ | Comp$^{s}$. |
|---|---|---|---|---|---|---|
| | h m s | ° ′ ″ | ″ | ° ′ ″ | ″ | |
| Aug. 2 | 10 26 42·6 | 265 25 0·6 | +1·5 | −11 42 44·2 | +4·4 | 4 |
| 4 | 9 28 39·9 | 265 16 30·4 | 0·7 | 11 57 0·1 | 4·3 | 10 |
| 7 | 9 11 42·4 | 265 7 32·4 | 0·6 | 12 19 5·4 | 4·0 | 4 |
| 16 | 9 9 21·0 | 265 8 36·1 | 1·1 | 13 26 52·0 | 5·3 | |
| 17 | 8 56 15·4 | 265 11 20·5 | 0·9 | 13 34 12·5 | 5·3 | |
| Sept. 3 | 8 27 0·6 | 267 12 43·4 | 1·3 | 15 38 45·7 | 4·9 | |
| 4 | 8 23 35·8 | 267 23 58·9 | 1·3 | 45 37·7 | 4·9 | |
| 5 | 8 15 9·7 | 267 35 43·6 | 1·2 | 52 39·1 | 4·9 | |
| 6 | 8 25 9·4 | 267 48 1·1 | 1·3 | 15 59 35·6 | 4·8 | |
| 7 | 8 4 0·3 | 268 0 30·6 | 1·2 | 16 6 14·3 | 4·8 | |
| 8 | 8 16 36·9 | 268 13 46·2 | 1·3 | 13 6·9 | 4·8 | |
| 9 | 8 29 40·5 | 268 27 22·7 | 1·5 | 19 44·5 | 4·7 | |
| 14 | 8 5 21·0 | 269 36 40·6 | +1·4 | −16 53 8·5 | +4·7 | |

The parallax is not applied to the observations.

*Mean* Places for Jan. 0, 1852, of Stars which are near the geocentric path of *Melpomene*, by M. C. Rümker, from Meridian Observations.

| Mag. | R.A. | Obs. | Decl. | Obs. | Mag. | R.A. | Obs. | Decl. | Obs. |
|---|---|---|---|---|---|---|---|---|---|
| | h m s | | ° ′ ″ | | | h m s | | ° ′ ″ | |
| 9 | 17 30 14·67 | 2 | −12 16 26·6 | 2 | 9 | 17 49 45·21 | 1 | −9 18 8·9 | 1 |
| 9 | 33 41·05 | 1 | 13 51 36·8 | 1 | 9 | 52 12·48 | 3 | 9 29 51·0 | 3 |
| 9 | 36 0·45 | 1 | 12 8 15·1 | 1 | 9 | 54 8·92 | 1 | 10 29 56·0 | 1 |
| 8.9 | 36 8·41 | 2 | 12 58 29·0 | 2 | 8 | 55 46·87 | 2 | 9 15 4·2 | 1 |
| 9 | 37 25·07 | 4 | 11 30 42·8 | 4 | 8 | 56 17·00 | 1 | 9 15 46·4 | 1 |
| 8 | 37 39·83 | 2 | 10 17 17·2 | 2 | 9 | 57 2·76 | 1 | 9 34 49·2 | 1 |
| 8 | 37 59·51 | 2 | 13 14 35·4 | 2 | 8 | 57 37·31 | 4 | 9 16 3·1 | 3 |
| 8 | 38 0·31 | 1 | 13 14 24·0 | 1 | 8 | 17 59 26·76 | 5 | 9 11 25·2 | 5 |
| 8 | 40 28·15 | 2 | 10 12 54·8 | 2 | 8 | 18 1 36·18 | 3 | 8 47 30·4 | 3 |
| 9 | 40 50·35 | 3 | 11 17 4·0 | 1 | 7 | 3 56·23 | 2 | 8 45 31·4 | 2 |
| 8.9 | 41 14·70 | 2 | 10 42 53·7 | 2 | 9 | 5 37·23 | 1 | 9 54 24·1 | 1 |
| 8.9 | 41 34·70 | 2 | 10 25 17·0 | 2 | 10 | 6 13·84 | 1 | 8 43 50·5 | 1 |
| 9 | 42 5·91 | 2 | 12 6 40·9 | 1 | 9 | 6 19·71 | 1 | 8 11 42·5 | 1 |
| 8.9 | 43 51·56 | 2 | 9 56 3·6 | 2 | 8.9 | 7 26·91 | 7 | 8 31 42·0 | 7 |
| 7 | 44 50·10 | 2 | 10 51 29·6 | 2 | 8 | 10 3·35 | 2 | 8 41 4·8 | 2 |
| 8 | 45 1·10 | 1 | 10 19 43·0 | 1 | 9 | 12 3·64 | 1 | 8 36 24·3 | 1 |
| 7 | 45 52·94 | 4 | 11 18 4·7 | 2 | 9.10 | 13 22·72 | 7 | 8 20 45·8 | 7 |
| 7 | 48 16·47 | 1 | 10 19 42·2 | 1 | 6 | 18 25·16 | 1 | 8 15 57·8 | 1 |
| 9 | 17 48 20·11 | 1 | −9 35 9·3 | 1 | 9 | 18 19 2·99 | 1 | −8 57 39·4 | 1 |

Elements and ephemerides of *Melpomene* will be found in Nos. 818, 819, 820 of the *Ast. Nach.*

There is some error in the R.A. of the second observation of July 4.

## IRENE.

LIVERPOOL. Equatoreal. (Mr. Hartnup.)

| 1852. | Green. M.T. h m s | R.A. h m s | Log $\frac{p}{P}$ | N.P.D. ° ′ ″ | Log $\frac{q}{P}$ | Star of Comparison. |
|---|---|---|---|---|---|---|
| Sept. 3 | 12 47 57·1 | 23 17 10·45 | +7·343 | 109 1 28·7 | −9·9778 | B.A.C. 8062 |
| | 13 25 52·1 | 9·72 | ·960 | 35·9 | ·9757 | — — |
| 8 | 11 30 6·0 | 23 12 51·43 | −7·886 | 109 29 40·9 | −9·9774 | — — |
| | 11 54 2·0 | 50·63 | ·520 | 44·4 | ·9787 | — — |
| 9 | 11 17 19·4 | 23 11 59·30 | −7·961 | 109 34 54·1 | −9·9769 | — — |
| | 11 45 14·7 | 58·36 | ·608 | 60·7 | ·9787 | — 8161 |

Assumed *Mean* Places of the Stars for 1852 0.

| | R.A. h m s | N.P.D. ° ′ ″ | Authority. |
|---|---|---|---|
| B.A.C. 8062 | 23 1 32·99 | 111 58 27·2 | B.A.C. |
| — 8161 | 23 18 16·10 | 111 27 6·8 | — |

## HYGEIA.

Professor Chevallier has computed an ephemeris of *Hygeia* for its present opposition from the elements given in the *Berlin Jahrbuch* for 1854. This ephemeris has been printed by the Professor and distributed. There are some copies at the Royal Astronomical Society, which will be forwarded on application.

## EUNOMIA.

HAMBURG. (M. C. Rümker.)

| 1852. | Hamburg M.T. h m s | R.A. ° ′ ″ | Parx. ″ | Decl. ° ′ ″ | Parx. | Obs. |
|---|---|---|---|---|---|---|
| July 16 | 13 29 33·2 | 47 37 20·2 | −2·4 | +28 30 47·5 | +2·5 | 2 |
| 17 | 12 15 47·5 | 48 6 6·2 | 2·2 | 28 39 29·6 | 2·8 | 7 |
| 23 | 12 42 14·4 | 51 3 26·1 | 2·5 | 29 35 43·3 | 2·7 | 8 |
| 24 | 11 56 1·4 | 51 31 50·4 | −2·3 | 29 44 9·0 | +2·9 | 11 |
| | | | Log Fact. Parx. | | Log Fact. Parx. | |
| Oct. 9 | 9 50 18·7 | 79 54 29·7 | −9·8722 | 36 54 40·9 | +9·8225 | 6 |
| 12 | 9 25 55·1 | 80 17 54·8 | 9·8703 | 37 12 26·3 | 9·8362 | 6 |
| 16 | 9 5 11·8 | 80 41 18·5 | −9·8695 | +37 11 36·1 | +9·8418 | 6 |

*Apparent* Places of the Stars of Comparison.

| | R.A. h m s | Decl. ° ′ ″ | | R.A. h m s | Decl. ° ′ ″ |
|---|---|---|---|---|---|
| Oct. 9 | 5 20 10·0 | +37 12 24·2 | Oct. 16 | 5 20 10·3 | +37 12 24·6 |
| 12 | 5 22 24·1 | +37 12 50·2 | | 5 22 24·3 | +37 12 50·5 |

## *Elements.* By M. George Rümker.

Epoch, August 21.0, 1851.

| | | |
|---|---|---|
| M ..... | = 314° 4′ 38″·39 | Jan. 0.0, 1852, Berlin M.T. |
| $\pi$ ..... | 28 11 58·00 | Mean Equinox, Jan. 0.0, 1852. |
| $\Omega$ ..... | 293 54 48·29 | |
| $i$ ..... | 11 43 56·47 | |
| $\varphi$ ..... | 10 47 29·24 | |

Log $a$ = 0·4214854 ; $\mu$ = 827″·52.

These elements were computed from the following observations.

| Berlin M.T. 1851. | App. R.A. | App. Decl. | Observations. |
|---|---|---|---|
| | h m s | ° ′ ″ | |
| Aug. 21.0 | 271 54 37·48 | −24 25 32·18 | 8 Camb. 1 Berlin |
| Oct. 20.0 | 282 43 53·77 | −20 45 55·20 | 1 Camb. 3 Berlin 2 Hamb. 5 Wash. |
| 1852. Jan. 9.0 | 316 17 9·35 | −11 49 2·48 | 4 Wash. |

The elements represent the middle observation thus :—
Calculated—Observed = +0″·11 in long. ; −0″·06 in lat.

From the above elements, M. George Rümker computed an ephemeris* from July 1 to Nov. 7, taking into account the perturbations caused by *Jupiter*, according to the elegant and convenient formulæ given by Dr. Brünnow, *Ast. Nach.* 808.

## THETIS.

MARKREE. Large Equatoreal and Square Micrometer. { E. J. Cooper, Esq., and Mr. Graham.

| Green. M.T. 1852 | R.A. | Decl. | | |
|---|---|---|---|---|
| | h m s | ° ′ ″ | | |
| May 24·482979 | 11 58 18·27 + [9·4045] : Δ | +8 8 10·1 + [0·8047] : Δ | *a* | 5 |
| ·482979 | 18·36 9·4045 | 10·4 0·8047 | *a* | 5 |
| ·501960 | 58 18·91 9·4452 | 8 5·9 0·8092 | *b* | 5 |
| ·501960 | 18·93 9·4452 | 5·5 0·8092 | *b* | 5 |
| 25·468457 | 11 58 41·96 9·3729 | +8 3 19·8 0·8024 | *c* | 5 |
| ·468457 | 42·13 9·3729 | 20·6 0·8024 | *c* | 5 |
| ·490160 | 58 42·61 9·4263 | 3 13·8 0·8073 | *c* | 5 |
| ·490160 | 42·51 + [9·4263] : Δ | 14·4 + [0·8073] : Δ | *c* | 5 |

Coefficients for parallax logarithmic. Δ = distance from the earth.

Adopted *Mean* Places for 1852·0, of Compared Stars, with reductions to apparent places at the times of observation, and authorities.

| | h m s | s | ° ′ ″ | ″ | |
|---|---|---|---|---|---|
| Weisse, 973 | 11 56 43·86 | +0·63 | +8 13 30·83 | −1·65 | *a* |
| — 971 | 56 43·00 | 0·63 | 13 58·13 | −1·65 | *b* |
| — 968 | 11 56 33·65 | +0·62 | +8 0 38·49 | −1·65 | *c* |

* This ephemeris is omitted, as being out of date at the time of publishing this Number ; it will be found with other ephemerides in the *Ast. Nach.* There is an ephemeris up to Dec. 31 in No. 832.

For the observations of *Thetis*, a new eye-piece of higher power was used, which gives a larger and much flatter field, the bars of the micrometer being broader than were those in the old eye-piece. By taking the time from a half seconds sidereal chronometer, the observations were left to depend alone upon my own eye and ear.

LIVERPOOL. Equatoreal. (Mr. Hartnup.)

| 1852. | Green. M.T. h m s | R.A. h m s | Log $\frac{p}{P}$ | N.P.D. ° ′ ″ | Log $\frac{q}{P}$ | Star of Comp. |
|---|---|---|---|---|---|---|
| May 6 | 9 48 1·4 | 11 55 39·41 | +7·845 | 80 54 51·0 | −9·8429 | B.A.C. 3982 |
| | 10 47 53·3 | 39·03 | +8·232 | 55·8 | −9·8474 | — — |

Assumed *Mean* Place of the Star for 1852·0.

| | R.A. h m s | N.P.D. ° ′ ″ | Authority. |
|---|---|---|---|
| B.A.C. 3982 | 11 38 15·14 | 82 38 29·7 | Greenwich Observations. |

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## PSYCHE.

MARKREE. Large Equatoreal and Square Micrometer. {E. J. Cooper, Esq., and Mr. Graham.

| 1852. | Green. M.T. h m s | R.A. h m s | | Decl. ° ′ ″ | | | |
|---|---|---|---|---|---|---|---|
| April | 12·474149 | 9 50 8·62 | +[9·3211] : Δ | +13 47 19·9 | +[0·7609] : Δ | *a* | 10 |
| | ·506741 | 8·88 | 9·4167 | 24·2 | 0·7734 | *a* | 10 |
| | 13·404241 | 50 7·58 | 8·8475 | 47 42·9 | 0·7439 | $a_1$ | 10 |
| | 17·398385 | 50 15·90 | 8·9081 | 49 3·2 | 0·7443 | $a_2$ | 14 |
| | 24·377393 | 9 51 16·99 | 9·0940 | 13 46 36·6 | 0·7483 | $a_3$ | 5 |
| | ·386856 | 16·77 | 9·1557 | 39·1 | 0·7505 | $a_3$ | 2 |
| May | 22·464501 | 10 4 40·84 | 9·5043 | +12 47 10·4 | 0·8018 | *b* | 5 |
| | ·475595 | 40·79 | +[9·5152] : Δ | 8·9 | +[0·8068] : Δ | *b* | 5 |

Coefficients for parallax logarithmic. Δ = distance from the earth.

Adopted *Mean* Places for 1852·0, of Compared Stars, with reductions to apparent places at the times of observation, and authorities.

| | h m s | s | ° ′ ″ | ″ | |
|---|---|---|---|---|---|
| Markree Mer. Cir. 5 obs. | 9 49 11·09 | +0·43 | +13 51 32·80 | −2·95 | *a* |
| | | 0·42 | | 2·88 | $a_1$ |
| | | 0·37 | | 2·61 | $a_2$ |
| | | 0·28 | | 2·18 | $a_3$ |
| Weisse, 45 | 10 3 40·09 | +0·00 | +12 45 51·88 | −0·71 | *b* |

M. Rümker's determination of *a* is,

A.S.N. XII, 161 $9^h\,49^m\,10^s{\cdot}87$ $+13^\circ\,51'\,33''$.

April 13. Blowing hard. I fear the observation is worth nothing.
April 24. Occasional gusts of wind may have affected the observation.
May 14. Carefully observed what unfortunately was not the planet.

## WESTPHAL'S COMET. II. 1852.

On the 24th of July, Dr. Westphal, of the Observatory of Göttingen, discovered a small comet about $1°\frac{3}{4}$ south of *f Piscium*. In the comet-seeker the comet seemed to be above 1′ in extent, and it was pretty bright. The position was estimated as follows:—

| 1852. | Göttingen M.T. h m s | R.A. h m | Decl. ° ′ |
|---|---|---|---|
| July 24 | 12 0 0 | 1 11·7 | +1 4 |

On the following night the comet was compared by M. Klinkerfues with Weisse i, 197; Dr. Westphal also estimated its position.

| 1852. | Göttingen M.T. h m s | R.A. h m s | Decl. ° ′ | |
|---|---|---|---|---|
| July 25 | 13 55 20 | 1 12 59·4 | +1 44 | Comparison |
| | 13 45 0 | 1 13·1 | +1 47 | Estimation |

### Altona. (Dr. Petersen and M. Sonntag.)

| 1852. | Altona M.T. h m s | R.A. h m s | Decl. ° ′ ″ |
|---|---|---|---|
| July 27 | 14 10 30 | 1 15 29·12 | +3 4 11·7 |
| 28 | 13 38 42 | 16 37·39 | 3 44 28·6 |
| Aug. 10 | 12 55 50·1 | 31 30·17 | 14 27 5·4 |
| 12 | 13 18 32·4 | 1 33 45·58 | +16 28 23·4 |

### Liverpool. Equatoreal. (Mr. Hartnup.)

| 1852. | Green. M.T. h m s | R.A. h m s | Log $\frac{p}{P}$ | N.P.D. ° ′ ″ | Log $\frac{q}{P}$ | Star of Comparison. |
|---|---|---|---|---|---|---|
| Aug. 25 | 12 35 21·3 | 1 48 8·81 | −8·535 | 57 44 25·5 | −9·6605 | B.A.C. 656 |
| | 13 5 18·0 | 10·13 | 8·474 | 42 37·6 | 9·6322 | — — |
| Sept. 1 | 10 56 52·6 | 1 56 2·76 | 8·695 | 47 28 38·2 | 9·6313 | — 676 |
| | 11 16 48·3 | 3·57 | 8·677 | 27 17·4 | 9·5977 | — — |
| 2 | 11 10 5·9 | 1 57 14·50 | 8·692 | 45 54 9·6 | 9·5822 | — 706 |
| | 11 35 3·5 | 15·80 | 8·664 | 52 31·8 | 9·5350 | — — |
| 9 | 12 33 11·6 | 2 6 9·15 | 8·625 | 34 37 24·7 | 8·7902 | — 721 |
| | 12 49 9·8 | 9·85 | 8·582 | 36 23·6 | 8·6201 | — — |
| | 13 5 8·4 | 10·49 | 8·532 | 35 17·7 | 8·3781 | — — |
| 17 | 7 54 50·9 | 2 18 44·78 | −9·010 | 22 23 27·3 | −9·6225 | — 802 |

Assumed *Mean* Places of the Stars for 1852·0.

| | R.A. h m s | N.P.D. ° ′ ″ | Authority. |
|---|---|---|---|
| B.A.C. 656 | 2 0 45·00 | 55 42 54·8 | Greenwich Observations. |
| — 676 | 2 3 57·74 | 46 27 56·9 | B.A.C. |
| — 706 | 2 9 45·33 | 43 18 21·8 | Greenwich Observations. |
| — 721 | 2 12 4·43 | 34 50 5·9 | Greenwich 12-yr. Catalogue. |
| — 802 | 2 29 43·91 | 22 34 30·2 | Oxford Observations. |

HAMBURG. (M. C. Rümker.)

| 1852. | Hamburg M.T. h m s | R.A. ° ′ ″ | L. Fact. Parˣ. | Decl. ° ′ ″ | L. Fact. Parˣ. | Comps. |
|---|---|---|---|---|---|---|
| July 27 | 13 38 26·0 | 18 51 50·9 | | +3 3 33·5 | | |
| Aug. 10 | 11 6 31·6 | 22 51 8·0 | | 14 22 45·0 | | |
| 12 | 11 21 53·9 | 23 25 2·4 | | 16 23 36·1 | | |
| Sept. 2 | 10 20 25·5 | 29 17 8·2 | −9·8968 | 43 59 50·8 | +9·6527 | 6 |
| 3 | 10 33 39·7 | 29 35 31·2 | 9·8981 | 45 35 26·5 | 9·6040 | 6 |
| 5 | 10 21 50·0 | 30 12 1·5 | 9·9287 | 48 45 21·0 | 9·5713 | 12 |
| 6 | 10 17 14·8 | 30 30 47·6 | 9·9360 | 50 21 54·3 | 9·5239 | 6 |
| 7 | 10 16 53·6 | 30 49 58·0 | 9·9578 | 51 57 30·3 | 9·5182 | 8 |
| 8 | 10 18 16·8 | 31 9 34·1 | 9·9709 | 53 34 5·2 | 9·4772 | 11 |
| 9 | 9 45 39·1 | 31 29 10·0 | 0·0059 | 55 8 35·8 | 9·5315 | 4 |
| 14 | 11 20 28·7 | 33 22 38·3 | 0·0008 | 63 11 26·6 | 8·0575 | 3 |
| 16 | 10 33 21·8 | 34 14 42·5 | 0·1075 | 66 13 25·1 | 8·6972 | 6 |
| 17 | 10 3 17·0 | 34 42 15·8 | 0·1606 | 67 42 12·6 | 8·9449 | 5 |
| 22 | 8 37 3·9 | 37 46 57·0 | 0·3571 | 74 48 43·1 | 9·2480 | 6 |
| 23 | 8 47 2·9 | 38 38 27·0 | 0·3955 | 76 10 45·4 | +9·1194 | 1 |
| 25 | 9 26 46·4 | 40 46 28·5 | 0·4723 | 78 50 6·0 | −7·5028 | 5 |
| Oct. 3 | 12 37 45·5 | 82 54 28·0 | −1·1003 | 87 37 40·6 | −9·4140 | 1 |
| 16 | 11 52 48·7 | 203 36 21·5 | +7·3512 | 80 11 46·1 | +9·8601 | 4 |

*Apparent* Places of the Stars of Comparison.

| 1852. | R.A. h m s | Decl. ° ′ ″ | 1852. | R.A. h m s | Decl. ° ′ ″ |
|---|---|---|---|---|---|
| Sept. 2 | 1 57 56·72 | +44 3 16·9 | Sept. 9 | 2 10 29·67 | +55 13 27·5 |
| 3 | 2 1 51·83 | 45 30 43·7 | | 10 39·02 | 8 27·8 |
| | 2 3·84 | 31 56·4 | | 12 7·33 | 9 51·7 |
| 5 | 2 2 16·67 | 48 45 7·9 | 14 | 2 9 25·14 | 63 11 19·1 |
| | 2 22·49 | 53 52·7 | 16 | 2 11 8·95 | 66 9 45·0 |
| | 3 31·65 | 41 7·4 | | 14 39·44 | 65 52 24·5 |
| 6 | 2 1 1·28 | 50 21 8·9 | 17 | 2 23 14·25 | 67 42 48·5 |
| | 3 49·76 | 22 31·2 | 22 | 2 31 17·81 | 74 46 28·1 |
| 7 | 2 5 39·46 | 51 49 4·0 | 23 | 2 42 0·40 | 76 28 25·5 |
| | 6 30·66 | 51 52 3·6 | 25 | 2 46 47·53 | 78 49 30·4 |
| | 6 46·13 | 52 1 49·1 | Oct 3 | 6 29 49·48 | 87 14 56·2 |
| 8 | 2 3 16·26 | +53 51 15·5 | 16 | 13 36 34·03 | +80 6 10·2 |

*Elements.* By M. George Rümker.

T 1852, Oct. 9·51695, Berlin M.T.

| | ° ′ ″ | |
|---|---|---|
| $\pi$ | 40 21 57 | App. Equinox, |
| $\Omega$ | 346 44 22 | July 29 |
| $i$ | 41 2 50 | |
| Log $q$ | 0·111004 | Motion direct. |

These elements are computed from Hamburg observations of July 27 and the Berlin observations of July 29 and August 7.*

Computed—Observed = +29″ in Long.; −2″ in Latitude.

The elements have some likeness to those of the comet of 1793.

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## COMET OF CHACORNAC. I. 1852.

### By Mr. G. P. Bond, Cambridge, U.S.

Mr. Bond *discovered* this comet on the morning of May 19th, and remarks that it was a faint insignificant object.

| 1852. | Camb. M.T. h m s | R.A. 1852·0. h m s | Decl. 1852·0. ° ′ ″ |
|---|---|---|---|
| May 18 | 13 5 45 | 22 28 55·51 | +74 35 53·2 |
| 19 | 9 36 9 | 26 12·47 | 76 53 15·2 |
| 20 | 9 37 18 | 21 38·85 | 79 31 47·8 |
| 21 | 11 14 37 | 22 13 30·74 | +82 17 12·7 |

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## BIELA'S COMET.

On August 25, Professer Secchi discovered a small comet in the constellation *Gemini;* at $15\frac{1}{2}^h$ M.T. the comet preceded a small star of 9.10 mag. about $4^s$, and at $15^h\ 52^m$ it exactly covered the star.

By comparisons with Lalande 14637, Professor Secchi found the following approximate place of the small star, viz.

R.A. ✱ = Lalande 14637 + $5^m\ 43^s{\cdot}6$, Decl. ✱ = Lalande 14637 + 5′ 20″
= $7^h\ 29^m\ 31^s{\cdot}4$ = +21° 48′ 37″ approximated.

The comet was subsequently compared with the star: the results are,

| 1852. | Rome M.T. h m | R.A. | Decl. |
|---|---|---|---|
| August 25 | 15 52 | ✱ | ✱ |
| | 16 14·5 | ✱ + $3^s{\cdot}85$ | ✱ − 42″ |

This comet was suspected by Professor Secchi to be one of the parts of Biela's Comet, although the place differed considerably from that assigned by Professor Santini.

On Sept. 15 Professor Secchi discovered the other portion of Biela's Comet. It was very faint, without nucleus, and of a long oval shape, the point being turned to the sun. It followed the former portion in about $2^m$, and was about half a degree to the

* An approximate ephemeris computed from the above elements between August 12 and September 21 was forwarded at the same time by M. George Rümker. This and another ephemeris by M. Sonntag are published in the *Astronomische Nachrichten.* It is now supposed to have a period somewhat less than 70 years.

south of it. The faintness of this latter portion, and the fear of missing the observations of the former portion, did not allow the Professor to make a more satisfactory estimate of the relative positions.

The larger and brighter portion had not the same shape as when seen on August 25 : it was altogether irregular and with two very feeble brushes. The centre was more luminous than the edges, but there was no nucleus. The comet was compared with a star of the 10th mag. which was again compared with *ζ Leonis*.

R.A. ∗ = R.A. ζ Leonis $-7^m\ 7^s{\cdot}2$, Decl. ∗ = Decl. ζ Leonis $-16''$.

The observation of the comet is as follows :—

| 1852. | Rome M.T. h m s | R.A. s | Decl. ′ ″ |
|---|---|---|---|
| Sept. 15 | 16 13 58·4 | ∗ −19·2 | ∗ −53·2 |

On Sept. 19 the two portions of the comet were compared with Lalande 19134.

| 1852. | Rome M.T. h m s | | R.A. m s | Decl. ′ ″ |
|---|---|---|---|---|
| Sept. 19 | 16 3 54·36 | Preceding Comet | ∗ −1 34·9 | ∗ +10 2·3 |
| | 16 12 29·16 | Following Comet | ∗ +0 17·42 | ∗ − 4 8·2 |

The preceding portion being the fainter.

On Sept. 21 the comets were compared with a star of the 7th mag. which is found in Harding's charts, R.A. $9^h\ 38^m$, Decl. $+9°\ 26''$, and is underlined.

| | Rome Sid. T. h m s | | R.A. s | Decl. s |
|---|---|---|---|---|
| Sept. 20 | 4 12 31·1 | Preceding Comet | ∗ −25·03 | ∗ +44·76 × 15 . cos δ |
| | 4 26 0·2 | Following Comet | ∗ +87·52 | ∗ −12·12 × 15 . cos δ |

A portion of the comet was observed by Professor Encke.

| 1852. | Berlin M.T. h m s | R.A. ° ′ ″ | Decl. ° ′ ″ |
|---|---|---|---|
| Sept. 17 | 15 45 16·7 | 141 32 4·9 | +10 50 55·8 |

---

## ENCKE'S COMET.

MARKREE. Large Equatoreal and Square Micrometer. {E. J. Cooper, Esq., and Mr. Graham.

| 1852. | Green. M.T. | R.A. h m s | Decl. ° ′ ″ | Compd Stars. | No. of Obs. |
|---|---|---|---|---|---|
| Jan. | 17·304752 | 23 11 17·87 | +4 31 24·4 | *a* | |
| | ·304752 | 16·95 | 25·8 | *b* | 10 |
| | ·304752 | 17·79 | 27·9 | *c* | |
| | 20·296745 | 23 15 11·82 | 4 50 14·4 | *d* | 10 |
| | 23·294799 | 23 19 19·54 | 5 10 25·6 | *e* | |
| | ·294799 | 19·39 | 30·1 | *f* | 10 |
| | ·294799 | 19·20 | 27·8 | *g* | |
| | ·294799 | 19·28 | 24·1 | *h* | |

| Green. M.T. 1852. | R.A. h m s | Decl. ° ′ ″ | Comp$^{d}$ Stars. | No. of Obs. |
|---|---|---|---|---|
| Jan. 24·294310 | 23 20 45·30 | 5 17 39·8 | $g_1$ | 10 |
| ·300704 | 45·79 | 41·1 | $g_1$ | 10 |
| Feb. 13·314821 | 23 54 7·22 | 8 0 37·5 | $k$ | 10 |
| 21·319601 | 0 9 26·45 | 9 0 35·1 | $l$ | 8 |
| 24·307928 | 0 15 7·10 | 9 15 25·5 | $m$ | 10 |
| ·328856 | 9·31 | 29·9 | $m$ | 10 |
| 25·307405 | 0 16 57·75 | 9 18 32·1 | $n$ | 10 |
| ·323949 | 59·24 | 43·9 | $n$ | 10 |
| Mar. 2·322882 | 0 26 22·89 | +9 6 27·5 | $o$ | 9 |

Corrected for parallax from Stratford's ephemeris.

Adopted *Mean* Places for 1852·0, of Compared Stars, with reductions to apparent places at the times of observation, and authorities.

| | R.A. h m s | s | Decl. ° ′ ″ | ″ | |
|---|---|---|---|---|---|
| B.A.C. 8127 | 23 12 48·19 | −1·60 | +4 34 26·46 | −6·99 | *a* |
| Weisse, 229 | 11 17·70 | 1·61 | 36 8·74 | 7·00 | *b* |
| — 252 | 12 38·19 | 1·60 | 30 31·37 | 7·05 | *c* |
| Rümker, A.S.N. XII, 138 | 14 31·19 | 1·62 | 4 41 38·90 | 7·29 | *d* |
| Weisse, 340 | 16 50·30 | 1·63 | 5 22 25·80 | 7·40 | *e* |
| — 359 | 17 50·11 | 1·62 | 13 41·04 | 7·44 | *f* |
| — 413 | 20 44·02 | 1·61 | 15 38·80 | 7·46 | *g* |
| — 414 | 20 44·68 | 1·61 | 17 5·40 | 7·46 | *h* |
| — 413 | 20 44·02 | 1·60 | 5 15 38·80 | 7·37 | $g_1$ |
| B.A.C. 8353 | 23 54 49·50 | 1·61 | 8 7 58·80 | 8·70 | *k* |
| Weisse, 126 | 0 7 47·66 | 1·61 | 8 55 42·93 | 9·09 | *l* |
| — 280 | 16 19·99 | 1·60 | 9 6 5·59 | 9·24 | *m* |
| — 317 | 19 15·68 | 1·60 | 9 19 46·94 | 9·25 | *n* |
| — 436 | 0 25 49·61 | −1·61 | +8 57 11·96 | −9·62 | *o* |

*Mean* Places for 1852·0, of Compared Stars, from other sources.

| | R.A. h m s | Decl. ° ′ ″ | |
|---|---|---|---|
| Piazzi, 49 | 23 12 47·82 | +4 34 30·26 | *a* |
| Rümker, A.S.N. XII, 138 | 12 48·22 | 34 28·38 | *a* |
| Piazzi, 43 | 11 16·20 | 36 12·96 | *b* |
| Lal. 45638 | 11 16·57 | 36 14·26 | *b* |
| — 45683 | 12 37·98 | 30 22·72 | *c* |
| — 45753 | 14 31·05 | 4 41 43·14 | *d* |
| — 45818 | 16 49·85 | 5 22 30·36 | *e* |
| — 45848 | 17 49·86 | 13 46·30 | *f* |
| — 45952 | 20 43·67 | 15 43·88 | *g* |
| Rümker, A.S.N. XII, 138 | 20 44·14 | 5 15 40·49 | *g* |
| — — 139 | 23 54 49·72 | 8 7 57·82 | *k* |
| Lal. 563 | 0 19 15·21 | +9 19 48·65 | *n* |

Jan. 17. Fancied a slight condensation, not central, but toward the N.E. The comet was excessively faint, and very difficult to observe. The want of a distinct nucleus necessarily makes the place uncertain.

Jan. 20. The comet appears like a very faint, wispy cloud, rather more condensed toward the northern portion. I apprehend there may have been small stars seen through the body during the observation, which was most difficult and uncertain.

Jan. 23. The observation as satisfactory as could be expected from the extreme faintness of the object. I have never had a stronger impression of the very vapoury nature of such bodies.

Jan. 24. The comet was close north, following Weisse 414, so close that it increased the difficulty of the observation. The moon, also, rather troublesome. I cannot depend much on the observation though carefully taken.

Feb. 13. The alteration in the brightness of the comet is unexpectedly great. It is now a fine object. The light at least equal to that of a star 10th magnitude, and beautifully white. The appearance is that of a rich round nebula, with a concentration of light, but no nucleus. The faint nebulosity did not seem to extend so far in the N.E. direction as elsewhere.

Feb. 21. Beautifully shown. Like a fine round nebula, uniformly surrounded by an atmosphere gradually fading off.

Feb. 24. Beautifully shown. Observation made with great care.

Feb. 25. Observation very carefully made.

March 8. Observed an object near to where the comet ought to be; but its light was so bright and concentrated that I had much doubt whether it was not a star. If it was the comet, the compared star is Weisse, 476, which was extremely faint, and the places would be,—

| | h m s | s | ° ′ ″ | ″ |
|---|---|---|---|---|
| Weisse, 476 | 0 27 51·44 | −1·61 | +7 19 53·22 | −10·10 |
| Comet, March 8·336181 | 0 29 4·35 | | +7 10 41·1 | |

I could not see Weisse, 510. The object was very low. Clouded before the observation could be satisfactorily completed.

March 10. Sought for the comet in a tolerably clear sky. Could not see it.

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## *On the Comet of* 1689.

### By Mr. Vogel, of Mr. Bishop's Observatory, South Villa, Regent's Park.

This great comet was invisible in Europe. It was seen at Pekin from December 10th to 21st, where the tail was from 10° to 12° above the horizon. At Ternate, the length of the tail on December 11th was $35°\frac{1}{2}$; on the 14th, 45°; on the 15th, 47°; and on the 22d, 60°; and was $2\frac{1}{2}^h$ in rising. It was last seen on December 24th, and was then greatly enfeebled by moonlight. It was observed by many Dutch ships in the vicinity of the equator. The observations upon which the orbit depends were taken by Father Richaud at Pondicherri, and by Béze and Comille at Malaca. On December 10th, at 4 o'clock A.M. (or December 9th, $10^h$ Greenwich mean time, Malaca being $102°\frac{1}{4}$ east of Greenwich), the comet was remarked to be in the intersection of two lines, one drawn from *π Centauri* of Bayer (4858 B.A.C.) and *φ' Lupi* of La Caille (5054 B.A.C.), the other passing through *o* and *ξ Lupi* of Bayer (B.A.C. 4924 and 5046), in the mouth of the *Wolf*, between

the tongue and the jaw; whence we have for the equinox of 1690, comet's longitude 239° 30′, latitude S. 16° 0′. Richaud also says the comet was in the mouth of the *Wolf*, between the tongue and the jaw; which, by Bayer's old atlas, would give, longitude 238° 40′, latitude S. 14° 30′; but this does not agree with the alignments. On December 14, according to all three observers, the comet was very near the small star $\upsilon$ (Bayer) *Lupi* (5139 *ι Lupi* in the B.A.C.) Richaud says "*tout proche*," and Béze, "*presque sur*:" hence the longitude comes out 238° 7′·6, latitude S. 22° 26′·9. On December 21, Richaud saw the comet 1° distant from the foot of the *Centaur* (*α Centauri*), certainly north of the star; since, on the 23d, it was still seen near the same: the assumed position is longitude 235° 5′, latitude S. 42° 0′. Béze and Comille say the comet moved between the 15th and 19th in a right line along the back of the *Wolf* towards *α Centauri*. The orbit which I have calculated upon these places gives, for the middle observation, errors of — 0′·6 in longitude and + 4′·5 in latitude; and is, therefore, very satisfactory. They are as follow:—

| | | |
|---|---|---|
| T | Nov. 29·200 | |
| | ° ′ | |
| $\varpi$ | 269 41·1 | |
| $\Omega$ | 90 25·4 | |
| $i$ | 59 4·5 | |
| Log $q$ | 8·27720 | Motion retrograde. |

The supposed identity of the comet of 1689 with that of 1843 (suggested by Professor Peirce*) is not by any means admissible, though there was an outward similarity between the two comets. The elements exhibit the following large differences:—

| | |
|---|---|
| | ° ′ |
| $\Delta\varpi$ | + 7 7 |
| $\Delta\Omega$ | −90 56 |
| $\Delta i$ | −23 25 |
| $\Delta q$ | −0·01337 |

nearly three times the least distance of the comet of 1843.

The following is a tabular view of the results given by the various orbits for this comet, as compared with the positions above given, the first two of which are not liable to more than 15′ error:—

| | Dec. 10. | | Dec. 14. | | Dec. 21. | |
|---|---|---|---|---|---|---|
| | *l* | *b* | *l* | *b* | *l* | *b* |
| | ° ′ | ° ′ | ° ′ | ° ′ | ° ′ | ° ′ |
| Observation | 239 30 | −16 0 | 238 8 | −22 27 | 235 5 | −42 0 |
| Pingré | 239 26 | 16 48 | 237 45 | 24 19 | 235 45 | 38 26 |
| Peirce | 239 18 | 13 8 | 237 36 | 21 10 | 235 15 | 39 11 |
| Vogel | 239 30 | 16 0 | 238 7 | 22 31 | 235 5 | 42 0 |
| Comet 1843 | 239 48 | −16 26 | 238 50 | −25 10 | 236 56 | −42 14 |

* Peirce's elements in Galle's Catalogue are for the equinox of 1843.

The differences between the calculated and observed places are as subjoined:—

| | Dec. 10. | | Dec. 14. | | Dec. 21. | |
|---|---|---|---|---|---|---|
| | $\Delta l$ | $\Delta b$ | $\Delta l'$ | $\Delta b''$ | $\Delta l'$ | $\Delta b''$ |
| | ° ′ | ° ′ | ° ′ | ° ′ | ° ′ | ° ′ |
| Pingré | −0 4 | −0 48 | −0 23 | −1 52 | +0 40 | +3 34 |
| Peirce | −0 12 | +2 52 | −0 32 | +1 17 | +0 10 | +2 49 |
| Vogel | 0 0 | 0 0 | −0 1 | −0 4 | 0 0 | 0 0 |
| 1843 | +0 18 | −0 26 | +0 42 | −2 43 | +1 51 | −0 14 |

The sums of the squares of these errors are,—

| | |
|---|---|
| Pingré | 62770 |
| Peirce | 65343 |
| 1843 | 41850 |
| Vogel | 17 |

The elements assumed for the comet of 1843 are those calculated by M. Valz of Marseille.

## NEW NEBULA.

In April last Mr. Hind remarked a nebulous object in *Ophiuchus* near Lalande 33076, which does not occur in any of the catalogues of nebulæ hitherto consulted. Its mean place for the beginning of 1852 is

R.A. 17 h 56 m 15 s N.P.D. 90 ° 17′·8

It is very small and rather faint, perhaps 1′ in diameter, and is preceded a few seconds by a very minute hazy-looking star.

*Micrometrical Measures of γ Virginis.* By Isaac Fletcher, Esq., Tarn Bank.

| Position. | Obs. | Wt. | Power. | Distance. | Obs. | Wt. | Power. | Epoch. | |
|---|---|---|---|---|---|---|---|---|---|
| ° ′ | | | | ″ | | | | | |
| 174 23 | 8 | 2 | 300 | 3·227 | 8 | 2 | 300 | 1852·416 | |
| 175 26 | 8 | 3 | 300 | 3·075 | 8 | 3 | 300 | ·424 | |
| 175 39 | 8 | 3 | 300 | 3·151 | 8 | 3 | 300 | ·427 | |
| 175 29 | 8 | 2 | 300 | 3·157 | 8 | 3 | 300 | ·427 | |
| 175 57 | 8 | 2 | 230 | 3·166 | 8 | 2 | 230 | ·430 | |
| Mean 175 24 | 40 | 12 | ... | 3·149 | 40 | 13 | ... | 1852·425 | Result. |

The observations are made with an achromatic equatoreal, of 6 feet focus, driven by clock-work.

The weights are assigned on the principle adopted by Sir John Herschel, in reducing his measures at the Cape.

*Occultation of the Double Star 29 Aquarii observed by Mr. Snow at Ashurst.* Latitude 51° 15′ 58″ N.; Longitude 1ᵐ 10ˢ W.

| | h | m | s | |
|---|---|---|---|---|
| 1852 Sept. 4 | 23 | 32 | 38·4 | Ashurst Sid. Time, Disappearance of 1st Star |
| | 23 | 32 | 41·4 | — — — — 2d — |

Five-foot equatoreal, power 170.

The disappearance took place at the dark limb. Probably the disappearance of the 1st star occurred 2ˢ earlier.

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*Note respecting the Pink Projections from the Sun's Disc observed during the Total Solar Eclipse observed in* 1851. By C. Babbage, Esq.

On reading the accounts of the observations of the solar eclipse of 1852 in the *Notices of the Astronomical Society* for January, I could not but regret the shortness of the time, about $3\frac{1}{2}$ minutes, during which those interesting and important pink excrescences could be observed.

It occurred to me that it might not be impossible to render them visible at other times and under ordinary circumstances. I am induced to throw out the following suggestions, with the hope that they may fall into the hands of those who may possess instruments and leisure to make trial of the plans.

1st. I had on several occasions used small pieces of thin sheet metal placed in the focus of the object-glass of a telescope, for the purpose of covering a portion of the field, and thus obscuring the light of the moon, a planet, or a large star, in order to observe more clearly small stars or satellites in their immediate neighbourhood.

I had also, in making some experiments in order to ascertain the cause of the apparent projections of certain stars upon and within the moon's disc, produced a series of artificial occultations of the sun's light reflected from a thermometer bulb placed at the end of my garden. This was accomplished by causing a circle of sheet iron, whose circumference was cut into a series of equi-distant notches and placed immediately before the artificial star, to revolve by clock-work at the sun's rate at which the moon passes over the star.

It therefore immediately struck me, that by placing a disc of the same magnitude as the sun's image in the focus of a telescope mounted equatoreally, and moving by clock-work, a continual and apparently total eclipse of the sun might be produced. If all light were carefully excluded, it seems not improbable that the pink projections would, under these circumstances, become perceptible.

2d. In case this plan should not succeed, I proposed to use the same means in the focus of the object-glass and to project the sun's

image in a darkened chamber upon photographic paper or on silver. The direct rays of the sun being cut off, it is possible that the pink projections may have sufficient power to act on the prepared materials presented to them, and we might thus obtain solar pictures of these appendages.

Even if success should not attend either of these methods, the preparations made for the latter plan might furnish us with a highly interesting series of representations of the solar spots.

The connexion of these pink prominences with a species of volcanic action connected with the solar spots seems probable from the observations recorded. The fact that one of these pink clouds was entirely dissevered from the sun's limb may be accounted for by supposing it to have arisen from a spot on the farther side of the sun. Those who have observed the dense lofty column of smoke arising in a clear calm day to great heights above a crater, have also occasionally observed the top of the column of smoke, on reaching a gentle current of air, pass on horizontally to great distances. Such a horizontal column, seen endways from a point at a great distance from our planet, might appear to be entirely disconnected from it by any continuous line of smoke.*

*Dorset Street, Manchester Square, 5 June, 1852.*

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*Extract of a Letter from Mr. Maclear, dated Aug. 1, 1852.*

"Mann is not over-strong. As for myself, though I show the marks of time, I never was in better health; viz. I have neither pains nor aches, nor any thing, save pained eyes from a very free use of them.

"My seven transit wires are now *on* the micrometer frame.

"I had remarked that the variations in the error of collimation were more changeable on the whole than the variations of the micrometer readings, viz. if the variations of collimation error be applied to the readings for coincidence of a micrometer wire with a fixed wire, the readings are nearly constant.

"It appears that when the micrometer screw is kept in position by a spring, small variations in the elasticity of the spring have no effect on the position of the screw so long as the residual elasticity is sufficiently strong for the work.

* Some months before the date of this note, Mr. Upton mentioned to me a plan for making the red prominences generally visible. The sun's image having been admitted into a darkened room, was to pass through an aperture in a white surface, the aperture being just equal to the image. The light after passing was to be afterwards absorbed in a box lined with black cloth. If the light could be sufficiently destroyed, it was expected that the red prominences might be seen on the rim of the aperture. Oddly enough, Mr. Upton had understood that the idea of the foregoing experiment originated with me, which it certainly did not, nor do I know the proposer. I mention this to prevent any misunderstanding. —R. Sheepshanks.

"The seven wires are $9^s{\cdot}2$ apart at the equator, but they might be $7^s$, nay $5^s$, for an expert observer.

"The instrument is reversed every third day in fine weather for the reading for the line of collimation when the middle wire is in that line. Then, adding the correction for diurnal aberration, and for the distance of the middle wire from the mean of the seven, we obtain an imaginary wire which is driven into the line of collimation by means of the register head, and this is the *set* for observation.

"The next reversion shows if there is any residual error of collimation to apply. My books prove the advantage of the plan, and what is of some value besides, I have shaken off a portion of the calculations for errors of position. Why not use a micrometer for right ascensions as well as polar distances, if you have the means for verification or constant check? I am observing the whole of the southern stars of the B.A.C. in right ascension and polar distance. About 600 or 650 are not yet observed.

"A capital series of polar distances for another determination of the parallax of $\alpha$ *Centauri* are ready for computation.

"The relative positions of the components for July 25, 1852, are

Angle of Position ... $262°{\cdot}77$
Distance ..... $5''{\cdot}03$

In January 1870 the angle and distance were respectively $246°0$ and $7''{\cdot}15$.

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*Extract of a Letter from Mr. Maclear, dated August 23, 1852.*

"I have just received Stratford's ephemeris of Biela's Comet. The sky was clouded last night. I am now well armed for these visitors.

"Another batch of about 40 B.A.C. discrepancies are reduced, but not in shape. I will try to get them ready for the return mail; otherwise by the following. Some of these are not explicable by the plan hitherto offered. Therefore such should be closely watched.

"I expect that the *whole* of the southern stars of the B.A.C. will have been observed by the 31st of December, in right ascension and polar distance.

"An unceasing series of observations in right ascension has been taken of the close circumpolars since the 24th of May. On that day $\tau$ *Octantis* was observable at consecutive transits. Their season will end with $\sigma$ *Octantis* in September. Thus good meridian marks are in progress of *erection* for the transit circle. Special tables can be calculated for one of the 10th mag. only about 9′ from the pole; with bright wire illumination this object will be useful. B.A.C. 7020 and $\sigma$ *Octantis* are our best polars for micrometer transits. These admit of great precision and great despatch."

Mr. W. Gray states that "on Easter Monday, the 12th of April, I saw, at Scarborough, immediately after sunset, a red pillar above the sun's place, which I estimated at about 18 degrees in height. I noted it for about ten minutes, when I was obliged to leave the spot."

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*Extract of a Letter from Capt. Shea.*

"I send you, for the inspection of the Royal Astronomical Society, a drawing representing the column of light seen by me for twenty minutes, immediately after sunset on the 8th of April, 1852. It did not appear to be a ray from the sun, as the sun set at the extreme left hand of the drawing.

"The phenomenon was observed from the Old Steine, Brighton, No. 8."

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## NEW PLANET (*Lutetia*)

*Discovered at Paris by M. Hermann Goldschmidt.*

| 1852. | Paris M.T. h m | R.A. h m s | Decl. ° ′ |
|---|---|---|---|
| Nov. 15 | 10 0 | 2 41 0 | +12 34 |
| 16 | 11 45 | 2 40 5 | 12 32 |
| 17 | 10 30 | 2 39 55 | +12 30 |

## NEW PLANET (*Calliope*)

*Discovered at Mr. Bishop's Observatory, by Mr. Hind.*

| 1852. | Green. M.T. h m s | App. R.A. h m s | N.P.D. ° ′ ″ |
|---|---|---|---|
| Nov. 16 | 12 32 0 | 5 13 37·5 | 65 30 7 |
| 17 | 11 51 52 | 5 12 49·38 | 65 26 44·5 |
| 18 | 8 46 30 | 5 12 5·51 | 65 22 33·2 |

## MASSILIA.

HAMBURG. (M. C. Rümker.)

| 1852. | Hamburg M.T. h m s | R.A. ° ′ ″ | L. Fact. Parx. | Decl. ° ′ ″ | L. Fact. Parx. | Comps. | Compd Star. |
|---|---|---|---|---|---|---|---|
| Oct. 26 | 8 32 33·8 | 355 53 76·8 | 9·1069 *n* | −1 26 56·7 | 9·9133 | 8 | *i k* |
| | 9 22 7·6 | 55·7 | | 62·2 | 9·9134 | | Mer. Cir. |
| Nov. 6 | 8 7 31·3 | 355 10 46·4 | 8·8600 *n* | 1 50 21·9 | 9·9154 | 4 | *i* |
| | 8 36 0·2 | 41·2 | | 15·6 | 9·9154 | | Mer. Cir. |
| 12 | 9 35 8·6 | 355 9 34·5 | 9·3236 | 1 53 14·8 | 9·9152 | 8 | *i k* |
| 13 | 8 8 28·5 | 10 38:: | | 52 53·3 | 9·9157 | | Mer. Cir. |
| 15 | 10 28 9·6 | 15 9·3 | 9·5527 | 51 59·8 | 9·9136 | 13 | *i k* |
| 19 | 6 37 8·7 | 27 56·4 | 9·2490 *n* | 47 56·8 | 9·9142 | 6 | *i k* |
| 23 | 7 11 23·1 | 48 0·6 | 8·7211 *n* | 40 22·0 | 9·9145 | 11 | *i k* |
| 24 | 5 56 4·0 | 355 53 39·8 | 9·3671 *n* | −1 38 29·9 | 9·9137 | 5 | *i k* |

*Mean* Places of Compared Stars for Jan. 0, 1852.

| | R.A. h m s | Decl. ° ′ ″ |
|---|---|---|
| *i* | 23 40 7·00 | −1 34 58·9 |
| *k* | 23 40 36·90 | −1 35 45·3 |

## FORTUNA.

DURHAM. Fraunhofer Equatoreal. (Mr. W. Ellis.)

| 1852. | Green. M.T. h m s | R.A. h m s | Log $\frac{p}{P}$ | N.P.D. ° ′ ″ | Log $\frac{q}{P}$ | No. of Comps. of R.A. | N.P.D. | Set. |
|---|---|---|---|---|---|---|---|---|
| Aug. 29 | 12 19 55·9 | 22 16 17·24 | +7·715 | 98 11 16·8 | −9·9476 | 6 | 3 | 1 |
| 30 | 9 49 43·9 | 15 30·63 | −8·273 | 16 18·2 | 9·9433 | 8 | 4 | 2 |
| | 11 42 9·9 | 26·48 | −6·602 | 44·3 | 9·9484 | 6 | 3 | 3 |
| 31 | 12 5 2·8 | 14 31·77 | +7·627 | 22 29·4 | 9·9485 | 18 | 6 | 4 |
| Sept. 1 | 13 1 0·9 | 13 37·67 | 8·156 | 28 20·4 | 9·9462 | 18 | 6 | 5 |
| | 13 43 26·6 | 36·04 | +8·318 | 32·2 | 9·9427 | 6 | 2 | 6 |
| 2 | 10 38 43·8 | 12 51·02 | −7·939 | 33 27·3 | 9·9484 | 18 | 6 | 7 |
| 3 | 13 16 58·9 | 11 53·59 | +8·262 | 98 39 37·3 | 9·9449 | 30 | 6 | 8 |
| | 13 55 40·4 | 51·86 | 8·378 | 44·4 | 9·9410 | 18 | 6 | 9 |
| | 14 34 49·3 | 50·55 | 8·459 | 55·2 | 9·9360 | 18 | 6 | 10 |
| 7 | 11 44 50·6 | 8 36·66 | 7·814 | 99 1 17·5 | 9·9506 | 18 | 6 | 11 |
| | 12 48 25·4 | 35·21 | 8·227 | 35·0 | 9·9469 | 12 | 3 | 12 |
| 9 | 13 43 51·0 | 22 6 57·78 | +8·417 | 99 12 24·2 | −9·9403 | 4 | 2 | 13 |

The observations were made with the wire micrometer, and are corrected for refraction. The corrections for parallax are represented by $p$ and $q$ as usual; P being the Equat. Hor. Parallax.

Assumed *Mean* Places of the Stars of Comparison, 1852, January 1.

| Star. | R.A. h m s | N.P.D. ° ′ ″ | Set. | Authority. |
|---|---|---|---|---|
| 36 Aquarii | 22 1 37·16 | 98 54 41·8 | 11 | Greenwich 12-year Catalogue. |
| Weisse XXII, 143 | 7 45·53 | 99 7 50·1 | 12, 13 | Weisse's Catalogue. |
| θ Aquarii | 9 1·19 | 98 31 6·2 | 6, 10 | Greenwich 12-year Catalogue. |
| Weisse XXII, 223 | 11 21·16 | 32 12·7 | 9 | Mean of Weisse's and Rümker's Catalogue. |
| ϱ Aquarii | 12 24·49 | 33 43·7 | 4, 5, 7, 8 | Greenwich 12-year Catalogue. |
| Weisse XXII, 397 | 22 18 48·27 | 98 7 38·0 | 1, 2, 3 | Weisse's Catalogue. |

*Remarks.*

Set 1, 6, 12. The observations interrupted by clouds.
— 2, 3. Cloudy, and very windy; at times putting the telescope in vibration.
— 13. Observed during a short break in the clouds on a cloudy and windy night.

OXFORD. Ring Micrometer.

| 1852. | Greenwich M.T. h m s | 497·8 × Δ. m s | App. R.A. h m s | Par. in R.A. s | App. N.P.D. ° ′ ″ | Par. in N.P.D. ″ | Comps. |
|---|---|---|---|---|---|---|---|
| Sept. 1 | 12 48 15·7 | − 9 46·3 | 22 13 38·23 | +0·10 | 98 28 13·3 | −6·3 | 9 with *h* |
| 2 | 11 51 52·1 | 9 46·8 | 12 48·29 | 0·03 | 33 39·0 | 6·3 | 15 with *h* |
| 3 | 13 20 43·1 | 9 47·2 | 11 53·45 | 0·15 | 98 39 31·5 | 6·2 | 10 with *h* |
| 10 | 12 3 17·3 | 9 52·8 | 22 6 15·59 | 0·09 | 99 17 9·8 | 6·2 | 14 with *i* |
| Oct. 2 | 11 12 12·2 | 10 44·5 | 21 55 37·59 | 0·14 | 100 41 46·6 | 5·8 | 4 with *k* & *l* |
| 5 | 11 25 1·3 | −10 55·1 | 21 55 17·19 | +0·16 | 100 47 30·6 | −5·6 | 12 with *l* |

The above observations are corrected for refraction; they were made by Mr. Norman Pogson.

*Mean* Places of the Stars of Comparison for 1852·0.

| | R.A. | N.P.D. |
|---|---|---|
| | h m s | ° ′ ″ |
| *h* = B.A.C. 7784 (ϱ Aquarii) | 22 12 24·55 | 98 33 41·2 |
| *i* = Weisse XXII, 143 | 22 7 45·59 | 99 7 43·3 |
| *k* = Weisse XXI, 1333 = 43044 Lalande | 21 57 41·94 | 100 36 48·1 |
| *l* = 42928 Lalande | 21 53 56·86 | 100 35 8·6 |

HAVERHILL. Equatoreal. (Mr. W. W. Boreham.)

| 1852. | Greenwich M.T. h m s | R.A. h m s | Log P$_s$. | N.P.D. ° ′ ″ | Log P″. | Obs. | Star. |
|---|---|---|---|---|---|---|---|
| Aug. 26 | 10 11 25·5 | 22 19 1·04 | −9·1996 | 97 53 50·9 | −0·8654 | 10 | *a* |
| 27 | 9 37 53·3 | 18 9·90 | 9·2936 | 97 59 16·7 | 0·8630 | 10 | *b* |
| 31 | 9 6 10 | 14 39·53 | 9·3213 | 98 21 39·7 | 0·8632 | 7 | *c* |
| Sept. 1 | 10 11 58·5 | 13 43·82 | 9·0567 | 98 27 36·3 | 0·8698 | 10 | *c* |
| 3 | 9 12 36·5 | 12 2·55 | 9·2711 | 98 38 38·0 | 0·8662 | 10 | *c* |
| 8 | 9 52 35·5 | 7 51·64 | 8·9907 | 99 6 17·6 | 0·8731 | 10 | *d* |
| 9 | 8 55 36·5 | 7 6·32 | 9·2527 | 12 17·8 | 0·8692 | 8 | *e* |
| 11 | 10 38 21 | 5 32·41 | 7·9964 | 23 2·3 | 0·8762 | 7 | *e* |
| 12 | 10 0 46 | 4 49·93 | 8·7906 | 28 2·8 | 0·8758 | 5 | *e* |
| 13 | 9 47 36 | 22 4 7·81 | −8·8776 | 99 32 57·5 | −0·8758 | 5 | *e* |

$\frac{P}{\Delta}$ = The parallax in seconds of time in R.A. and in seconds of arc in N.P.D. where Δ is the distance of the planet from the earth.

The observations are corrected for refraction.

*Mean* Places for 1852·0 of the Stars of Comparison.

| | | R.A. h m s | N.P.D. ° ′ ″ |
|---|---|---|---|
| *a* | Weisse xxii, 397 | 22 18 48·27 | 98 7 38·1 |
| *b* | B.A.C. 7804 | 15 46·36 | 97 56 25·0 |
| *c* | — 7784 | 12 24·55 | 98 33 41·0 |
| *d* | — 7773 | 9 1·07 | 98 31 5·3 |
| *e* | — 7774 | 22 9 3·57 | 99 47 33·6 |

HAMBURG. (M. C. Rümker.)

| 1852. | Hamburg M.T. h m s | R.A. ° ′ ″ | L. Fact. Par$^x$. | Decl. ° ′ ″ | L. Fact. Par$^x$. | Comp. | Comp$^d$ Stars. |
|---|---|---|---|---|---|---|---|
| Oct. 24 | 7 46 30·1 | 329 57 20·2 | | −10 47 45·8 | 9·9549 | | Mer. Cir. |
| 26 | 7 39 46·1 | 330 14 20·0 | | 10 45 30·2 | 9·9548 | | Mer. Cir. |
| Nov. 6 | 6 23 35·7 | 332 15 8·0 | 9·0319 *n* | 10 13 23·0 | 9·9520 | 5 | *g* |
| 12 | 8 58 19·0 | 333 41 26·5 | 9·5164 | −9 47 37·0 | 9·9432 | 6 | *h* |

*Apparent* Places of Computed Stars.

| | R.A. h m s | Decl. ° ′ ″ |
|---|---|---|
| *g* | 22 7 46·03 | −10 20 49·3 |
| *h* | 22 12 46·45 | − 9 47 16·9 |

## EUNOMIA.

HAMBURG. (M. C. Rümker.)

| 1852. | Hamburg M.T. h m s | R.A. ° ′ ″ | L. Fact. Parˣ. | Decl. ° ′ ″ | L. Fact. Parˣ. | Comps. | Compⁱ Star. |
|---|---|---|---|---|---|---|---|
| Nov. 6 | 11 10 8·5 | 80 4 35·0 | 9·7335 *n* | +37 30 50·1 | 9·5884 | 13 | *p q* |
| 12 | 10 14 4·0 | 79 5 42·0 | 9·7787 *n* | 37 23 47·9 | 9·6271 | 4 | *r s* |
| 13 | 9 11 23·3 | 78 54 37·7 | 9·8409 *n* | 37 22 6·6 | 9·7023 | 13 | *t* |
| 15 | 11 48 12·5 | 78 28 22·5 | 9·5194 | 37 17 23·3 | 9·5012 | 15 | *u* |
| 19 | 7 53 13·7 | 77 35 38·7 | 9·8659 *n* | +37 6 12·3 | 9·7644 | 12 | *v w z* |

*Apparent* Places of Compared Stars for Date of Comparison.

| | R.A. h m s | Decl. ° ′ ″ | | R.A. h m s | Decl. ° ′ ″ |
|---|---|---|---|---|---|
| *p* | 5 20 5·51 | +37 31 18·9 | *u* | 5 14 39·55 | +37 14 31·3 |
| *q* | 20 45·41 | 41 27·4 | *v* | 9 7·56 | 8 50·5 |
| *r* | 14 39·46 | 14 30·8 | *w* | 9 16·18 | 7 41·7 |
| *s* | 14 57·39 | 21 40·9 | *z* | 5 10 43·22 | +37 16 52·7 |
| *t* | 5 14 57·40 | +37 21 41·2 | | | |

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## HYGEIA.

DURHAM. Fraunhofer Equatoreal. (Mr. W. Ellis.)

| 1852. | Green. M.T. h m s | R.A. h m s | Log $\frac{p}{P}$ | N.P.D. ° ′ ″ | Log $\frac{q}{P}$ | No. of Comps. of R.A. | N.P.D. | Set. |
|---|---|---|---|---|---|---|---|---|
| Oct. 23 | 11 57 57·2 | 4 49 4·92 | −8·456 | 64 2 46·77 | −9·7345 | 18 | 6 | 1 |
| | 12 41 56·6 | 3·71 | 8·341 | 48·48 | 9·7110 | 18 | 6 | 2 |
| 24 | 9 42 21·3 | 4 48 42·71 | −8·616 | 64 3 9·72 | −9·8225 | 15 | 6 | 3 |
| | 15 34 7·8 | 36·66 | +7·998 | 14·47 | 9·6860 | 12 | 4 | 4 |
| | 15 52 21·9 | 36·16 | +8·123 | ..... | ... | 12 | ... | 5 |
| 25 | 10 58 58·6 | 4 48 15·89 | −8·542 | 64 3 40·27 | −9·7666 | 18 | 6 | 6 |

The observations were made as usual with the wire micrometer, and are corrected for refraction. The corrections for parallax in time and arc, which are to be applied to the R.A. and N.P.D., are represented by $p$ and $q$. P = Equat. Hor. Parallax.

Assumed *Mean* Places of the Stars of Comparison, 1852, January 1.

| Star. | R.A. h m s | N.P.D. ° ′ ″ | Set. |
|---|---|---|---|
| No. 109 of Bessel's Zone 396 | 4 49 10·52 | 64 8 42·81 | 2, 3, 5, 6 |
| No. 110 — — — | 4 50 30·73 | 63 58 39·81 | 1, 4 |

Set 3. Interrupted by clouds.

— 5. R.A. comparisons only taken; the nearly vertical position of the telescope so near the meridian renders the observations rather difficult.

The above are all the observations of *Hygeia* obtained in the month of October; they are reduced at present, provisionally, using the places of the stars as given by Bessel's Zone Observations. A more correct reduction will hereafter be made, Professor Challis having kindly undertaken to reobserve the two stars.

## IRENE.

DURHAM. Fraunhofer Equatoreal. (Mr. W. Ellis.)

| 1852. | Green. M.T. h m s | R.A. h m s | Log $\frac{p}{P}$ | N.P.D. ° ′ ″ | Log $\frac{q}{P}$ | No. of Comps. of R.A. | N.P.D. | Set. |
|---|---|---|---|---|---|---|---|---|
| Sept. 11 | 13 18 54·2 | 23 10 10·07 | +8·181 | 109 45 23·1 | −9·9762 | 12 | 4 | 1 |
| 13 | 12 0 59·4 | 8 28·64 | 7·514 | 109 54 40·3 | 9·9827 | 18 | 6 | 2 |
| 16 | 13 8 36·0 | 5 51·62 | 8·243 | 110 7 47·3 | 9·9748 | 18 | 6 | 3 |
| 17 | 12 5 6·1 | 23 5 3·40 | +7·873 | 110 11 35·9 | −9·9820 | 18 | 6 | 4 |

The observations were made with the wire micrometer, and they are corrected for refraction. The corrections for parallax are represented by $p$ and $q$ as usual; P being the Equat. Hor. Parallax.

Assumed *Mean* Places of the Stars of Comparison, 1852, January 1.

| Star. | R.A. h m s | N.P.D. ° ′ ″ | Set. | Authority. |
|---|---|---|---|---|
| Anonymous, 10th mag. | 23 5 7·69 | 110 3 53·6 | 3, 4 | Equat. comps. with Lal. 45800. |
| Lalande 45610 | 10 41·14 | 109 38 59·0 | 1 | Mean of Lalande and 54 of Arg. Zone 262. |
| — 45800 | 23 15 57·52 | 109 55 12·3 | 2 | Mean of Lal. and 61 of Arg. Z. 262. |

*Remarks.*

Set 1. A violent wind, the clock was with great difficulty heard.
— 3 and 4. The assumed place of the star is from six comparisons of R.A. and two comparisons of N.P.D. with Lalande 45800.
The planet was very faint on each night, but appeared brightest on September 17.

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## MELPOMENE.

OXFORD. Meridian. (Mr. Johnson.)

| | Greenwich M.T. h m s | 497″·8 × Δ. m s | Appᵗ R.A. h m s | Appᵗ N.P.D. ° ′ ″ | Parˣ in N.P.D. ″ |
|---|---|---|---|---|---|
| July 7 | 11 0 28·4 | −10 20·5 | 17 59 39·00 | 99 2 4·4 | −6·0 |
| 21 | 9 53 32·4 | −10 33·3 | 17 47 43·94 | 100 20 5·4 | −5·9 |

### With the Ring Micrometer.

| 1852. | Greenwich M.T. h m s | 497″·8 × Δ. m s | App. R.A. h m s | Par. in R.A. s | App. N.P.D. ° ′ ″ | Par. in N.P.D. ″ | Comps. |
|---|---|---|---|---|---|---|---|
| July 3 | 12 40 55·5 | −10 20·5 | 18 3 36·28 | +0·10 | 98 45 9·0 | −5·9 | 9 with *a* |
| 7 | 12 43 30·7 | 10 20·5 | 17 59 34·86 | 0·13 | 99 2 24·5 | 5·9 | 12 with *b* |
| 8 | 12 20 11·9 | 10 20·8 | 58 37·20 | 0·10 | 7 5·5 | 5·9 | 11 with *b* & *c* |
| 9 | 13 6 1·4 | 10 21·2 | 57 37·62 | 0·16 | 12 12·8 | 5·9 | 7 with *b* & *c* |
| 12 | 12 5 3·8 | 10 22·9 | 54 52·65 | 0·11 | 27 25·5 | 5·9 | 16 with *c* & *d* |
| 15 | 12 3 51·6 | 10 25·5 | 52 16·05 | 0·12 | 44 4·3 | 5·9 | 12 with *e* |
| 17 | 12 32 16·7 | 10 27·6 | 50 37·23 | 0·16 | 99 55 56·3 | 5·8 | 16 with *e* |
| 21 | 12 26 27·8 | 10 33·3 | 47 39·94 | 0·18 | 100 20 43·9 | 5·8 | 6 with *f* |
| 22 | 12 8 26·4 | 10 34·7 | 47 0·10 | 0·16 | 27 5·3 | 5·8 | 7 with *f* |
| 23 | 12 6 31·3 | 10 36·5 | 46 21·62 | 0·16 | 33 42·2 | 5·8 | 13 with *f* |
| 24 | 12 32 26·4 | −10 38·3 | 17 45 43·51 | +0·19 | 100 40 29·3 | −5·7 | 10 with *g* |

The adopted *Mean* Places of the Comparison Stars for 1852·0 are as follows :—

| | R.A. h m s | N.P.D. ° ′ ″ |
|---|---|---|
| *a* = Weisse XVIII, 61 = 33403 Lalande | 18 3 56·22 | 98 45 32·4 |
| *b* = Weisse XVII, 1260 | 17 59 26·89 | 99 11 28·5 |
| *c* = Weisse XVII, 1212 | 17 57 37·30 | 99 16 6·4 |
| *d* = Weisse XVII, 1169 | 17 55 47·05 | 99 15 1·9 |
| *e* = B.A.C. 6078 (ν Ophiuchi) | 17 50 52·88 | 99 45 2·4 |
| *f* = Weisse XVII, 906 = 32665 Lalande | 17 45 1·12 | 100 19 47·6 |
| *g* = B.A.C. 6049 | 17 44 50·19 | 100 51 35·6 |

The observations are corrected for refraction. Those with the ring micrometer are made by Mr. Norman Pogson.

DURHAM. Fraunhofer Equatoreal. (Mr. W. Ellis.)

| 1852. | Green. M.T. h m s | R.A. h m s | Log $\frac{p}{P}$ | N.P.D. ° ′ ″ | Log $\frac{q}{P}$ | No. of Comps. of R.A. | No. of Comps. of N.P.D. | Set. |
|---|---|---|---|---|---|---|---|---|
| July 3 | 13 14 56·8 | 18 3 34·58 | +8·268 | ..... | ... | 4 | ... | 1 |
| 4 | 12 54 15·9 | 2 34·73 | 8·209 | ..... | ... | 9 | ... | 2 |
| 5 | 12 42 3·2 | 18 1 34·53 | 8·177 | ..... | ... | 9 | ... | 3 |
| 8 | 12 6 32·6 | 17 58 37·58 | 8·070 | ..... | ... | 10 | ... | 4 |
| 10 | 12 20 22·1 | 56 42·47 | 8·190 | 99 16 58·7 | −9·9485 | 30 | 10 | 5 |
| 11 | 11 27 41·3 | 55 48·74 | 7·885 | 21 58·1 | 9·9516 | 18 | 6 | 6 |
| 12 | 11 29 6·1 | 54 53·88 | 7·942 | 27 15·0 | 9·9516 | 18 | 6 | 7 |
| | 13 42 26·1 | 49·32 | 8·452 | 27 54·1 | 9·9383 | 6 | 2 | 8 |
| 14 | 11 34 52·9 | 53 7·94 | 8·053 | 38 18·6 | 9·9516 | 4 | 2 | 9 |
| 17 | 11 58 43·5 | 50 37·80 | 8·241 | 55 46·3 | 9·9496 | 6 | 6 | 10 |
| | 12 42 8·6 | 36·28 | 8·375 | 99 55 58·6 | 9·9447 | 6 | 6 | 11 |
| 18 | 11 37 52·5 | 49 52·08 | 8·173 | 100 1 48·5 | 9·9513 | 18 | 6 | 12 |
| 19 | 10 54 24·6 | 49 8·19 | 7·932 | 7 46·0 | 9·9541 | 18 | 6 | 13 |
| 22 | 11 45 57·0 | 47 0·74 | 8·279 | 27 5·7 | 9·9501 | 18 | 6 | 14 |
| 23 | 11 0 43·3 | 46 23·27 | 8·097 | 33 26·4 | 9·9536 | 12 | 4 | 15 |
| 24 | 10 59 43·9 | 45 46·30 | 8·122 | 100 40 7·9 | 9·9541 | 18 | 6 | 16 |
| Aug. 3 | 11 56 10·8 | 41 19·92 | 8·443 | 101 50 44·8 | 9·9445 | 15 | 5 | 17 |
| 4 | 10 50 48·5 | 41 4·69 | 8·288 | 101 57 47·5 | 9·9542 | 12 | 4 | 18 |
| 5 | 10 45 33·9 | 40 51·21 | 8·284 | 102 5 4·4 | 9·9547 | 18 | 6 | 19 |
| 7 | 10 13 8·7 | 40 30·13 | 8·190 | 19 44·0 | 9·9580 | 3 | 1 | 20 |
| 8 | 11 36 40·1 | 40 21·83 | 8·447 | 27 35·7 | 9·9455 | 18 | 6 | 21 |
| 9 | 10 30 59·3 | 40 16·57 | 8·291 | 102 34 42·9 | 9·9558 | 20 | 10 | 22 |
| 31 | 9 39 20·4 | 46 47·93 | 8·379 | 105 18 9·9 | 9·9574 | 12 | 6 | 23 |
| Sept. 3 | 9 13 52·4 | 48 52·35 | 8·336 | 105 39 20·1 | 9·9610 | 6 | 2 | 24 |
| 10 | 9 3 49·4 | 54 47·67 | 8·370 | 106 26 46·9 | 9·9604 | 10 | 5 | 25 |
| 11 | 9 16 29·8 | 55 45·70 | 8·409 | 33 18·7 | 9·9573 | 8 | 4 | 26 |
| 13 | 8 50 15·8 | 17 57 45·14 | 8·359 | 106 46 1·5 | 9·9619 | 18 | 6 | 27 |
| 17 | 9 30 8·4 | 18 2 5·71 | +8·473 | (107 11 6·1) | −9·9507 | 18 | 3 | 28 |

The observations are corrected for refraction.
The corrections for parallax in time and arc which are to be applied to the

R.A. and N.P.D. are represented by $p$ and $q$ respectively. P = Equatoreal Horizontal Parallax.

On July 3, 4, 5, and 8, the observations were made with the ring micrometer. As it was found that the N.P.D.'s deduced from these observations were not at all satisfactory, they have been omitted from the above table; the results for R.A. however, appeared to be worth retaining. From July 10 the observations were made with the wire micrometer.

Assumed *Mean* Places of the Stars of Comparison, 1852, January 1.

| Star. | R.A. h m s | N.P.D. ° ′ ″ | Set. | Authority. |
|---|---|---|---|---|
| Lalande 32525 | 17 41 36·82 | 102 33 29·28 | 22 | Equat. comps. with Weisse XVII. 887, and *o* Serpentis. |
| Weisse XVII, 834 | 42 6·52 | 6 45·65 | 18, 19 | Weisse's Catalogue. |
| — XVII, 887 | 44 39·66 | 102 21 48·61 | 20, 21 | — — |
| B.A.C. 6049 | 44 50·26 | 100 51 34·20 | 16 | Mean of B.A. and Weisse's Cat. |
| Weisse XVII, 906 | 45 0·85 | 100 19 52·23 | 14, 15 | Weisse's Catalogue. |
| B.A.C. 6065 | 47 48·23 | 105 46 57·13 | 24 | B.A. Catalogue. |
| Weisse XVII, 966 | 47 51·19 | 105 9 12·08 | 23 | Weisse's Catalogue. |
| — XVII, 980 | 48 16·70 | 100 9 38·07 | 12, 13 | — — |
| — XVII, 1029 | 50 24·10 | 101 51 15·81 | 17 | — — |
| ρ Ophiuchi | 50 52·83 | 99 45 3·48 | 9, 10, 11 | Greenwich 12-year Catalogue. |
| Weisse XVII, 1169 | 55 47·06 | 99 15 1·75 | 7 | Weisse's Catalogue. |
| — XVII, 1212 | 57 37·31 | 99 16 6·23 | 4, 5, 6 | — — |
| Lalande 33178 | 58 39·31 | 106 39 59·00 | 27 | Mean of Lalande and No. 5 of Arg. Zone 230. |
| No. 37 of Arg. Zone 218 | 59 13·44 | 107 10 8·95 | 28 | Mean of No. 37 of Arg. Zone 218 and No. 2 of Zone 225. |
| Lalande 33222 | 17 59 55·56 | 106 25 53·06 | 25, 26 | Mean of Lal. No. 3 of Arg. Zone 225 and No. 8 of Zone 230. |
| Weisse XVIII, 7 | 18 1 36·58 | ..... | 2, 3 | Weisse's Catalogue |
| — XVIII, 51 | 3 38·83 | 99 34 28·62 | 8 | — — |
| — XVIII, 61 | 18 3 56·16 | ..... | 1 | — — |

*Remarks.*

Set 1, 9, 13, 18, 21, and 24. The observations were unfavourably taken on account of clouds.

— 8. No more comparisons could be taken with this star, as the planet could not be seen any longer.

— 10 and 11. The star very inconveniently situated for observation.

— 15. Observed with difficulty on account of clouds; the wind also continually put the telescope into a state of vibration. No star was to be had nearer in N.P.D. to the planet.

— 16. No star was to be had nearer in N.P.D. to the planet.

— 17. Fine night; the planet was very near to a small star, causing some uncertainty in the observation.

— 20. One set of comparisons only, obtained between clouds.

— 22. Lalande's place of the star is not taken; the assumed place depends entirely on equatoreal comparisons with Weisse's Bessel XVII, 887 and *o Serpentis*, being the mean of six comparisons of R.A. and two comparisons of N.P.D. with each star.

— 23. Fine night, but the wind troublesome.

— 26. High wind; the hearing tube used.

— 27. Foggy; the planet extremely faint.

— 28. The N.P.D. measures are bad, the planet was so faint; the resulting N.P.D. must only be considered as approximate.

## WESTPHAL'S COMET. II. 1852.

HAMBURG. (M. C. Rümker.)

| 1852. | Hamburg M.T. h m s | R.A. ° ′ ″ | L. Fact. Parx. | Decl. ° ′ ″ | L. Fact. Parx. | Comps. | Comp Stars |
|---|---|---|---|---|---|---|---|
| Nov. 4 | 9 31 47·5 | 210 23 29 | 9·8519 | +70 46 31·0 | 9·8924 | 2 | *a b c* |
| 6 | 9 46 12·3 | 210 38 37 | 9·7293 | +70 7 15·7 | 9·9059 | 3 | *d e f* |

*Apparent* Places of Compared Stars.

| | R.A. h m s | Decl. ° ′ ″ | | R.A. h m s | Decl. ° ′ ″ |
|---|---|---|---|---|---|
| *a* | 13 59 6·06 | +71 2 41·5 | *d* | 14 6 36·40 | +70 17 9·4 |
| *b* | 14 0 28·19 | 70 59 36·2 | *e* | 14 7 36·24 | 70 3 8·3 |
| *c* | 14 0 42·41 | +70 43 58·8 | *f* | 14 7 16·67 | +70 7 31·9 |

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In vol. xii. p. 93, Mr. Edward Hill is mentioned "as the inventor of the envelope machine:" the machine referred to being that which was exhibited last year by Messrs. Thomas De la Rue and Co. The Editor is informed by MM. Edwin Hill and Warren De la Rue that this machine is their *joint* invention, and that they are *joint* patentees.

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### ERRATA

Vol. xi. page 52, line 5 from the bottom, *for* "inner axis," *read* "minor axis."

Vol. xii. page 50, line 11, *read* its north end highest, about 1′ high. The other two were, &c.

— — 61, line 19, *read* lat. 57° 42′ 58″ N., long. $0^h\ 47^m\ 45^s{\cdot}3$ E.

— — 62, line 25, *for* group of spots 1′, *read* $1\frac{1}{2}'$.

— — —, lines 27, 28, 29, *for* $3^h\ 8^m$, *read* $3^h\ 58^m$.

In the early copies, vol. xii. No. 3 (*Solar Eclipse*),

Page 43, line 19, *for* Colonel Silverstopfe, *read* Silverstolpe.

— 45, last line, *for* 70°, *read* 45°.

— 46, line 1, *for* 100°, *read* 80°.

— — — 2, *for* 145°, *read* 110°.

— 47, — 34, *for* RINGERIGEL, *read* RINGERIDET.

— 49, — 29, 31, *for* JUNE, *read* TUNE.

— 64, — 42, *for* $3^h\ 56^m\ 54^s{\cdot}9$, *read* $3^h\ 55^m\ 54^s{\cdot}9$.

— 66, — 18, *for* RAVELSBERG, *read* RÆVELSBERG.

— 67, 2d line from bottom, *for* 22 inches, *read* 20 inches.

— 72, line 30, *for* Colonel Silverstopfe, *read* Silverstolpe.

In plate, *for* 11, *read* 14.

These last-mentioned errata were corrected in the copies distinguished by an asterisk affixed to the Number, No. 3.*

Vol. xii. page 152, line 4 from the bottom, *for* 18″·61, *read* 28″·61.

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Académie des Sciences, Mémoires présentés par divers Savants, tome treizième, 4to. *Paris*, 1852 — L'Académie des Sciences.

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——— ———————, On the Influence of Signs in Mathematical Reasoning, 4to. *Cambridge*, 1826

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The Hon. East India Company. Bombay. Observations made at the Magnetical and Meteorological Observatory of, in the year 1847; part 2, Meteorological Observations, 4to. *Bombay*, 1851

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——— Faye, H., Leçons de Cosmographie, 8vo. *Paris*, 1852

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